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AN ASSESSMENT OF THREE FOREIGN LANGUAGE TEACHING STRATEGIES UTILIZING THREE LANGUAGE LABORATORY SYSTEMS.

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This is a report on a statewide experiment conducted in Pennsylvania secondary schools of all types during the 1965-66 school year. The project sought to determine the effectiveness of various teaching strategies and of the language laboratory in the environment of the real school situation. Each of 61 first-year French classes and 43 first-year German classes were assigned one of seven experimental treatments. The report tentatively concludes that while innovations in foreign language instruction have been widespread, the classroom impact may be more superficial than the profession hoped. This report is not truly final, but the first of two reports. Until the second appears, all conclusions should be viewed as tentative. (KM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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HEALTH, EDUCATION, AND WELFARE

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PREFACE AND ACKNOWLEDGEMENTS

In studying this "Final Report" of Project 1330, the reader should be aware that it is not truly "final" but the first of two reports. The second and more meaningful report will both continue this present study and report on a replication of this first year data. In a sense then, the "final" report is but an "interim" report. Conclusions should be viewed as tentative until completion of the longitudinal study and verification by the replication.

It must be recognized that this large-scale investigation, a joint cooperative undertaking of the State Department of Public Instruction and the Cooperative Research Center of West Chester State College, was wholly dependent upon the contributions of literally hundreds of professionals - the foreign language specialists consulted, the research and statistical consultants, a large number of supportive school administrators, the Educational Testing Service and the Computer Center of West Chester State College. Specific mention must be made of the support provided by Dr. Earl F. Sykes, President, Dr. Arnold C. Fletcher, Dean of Academic Affairs, Dr. Martin J. Higgins, Director of Research, Mr. Wesley Fasnacht, Director of the Computer Center, West Chester State College, as well as Dr. Robert Hayes, Bureau of Research, the Department of Public Instruction. Special credit for providing the initial emphasis for the research is due Dr. N. Sidney Archer, then Director of the Bureau of Research, Department of Public Instruction.

It is those persons who actually conducted the research who made this report possible, Dr. Milton C. Woodlen, Dr. Alfred D. Roberts, Mr. Ralph A. Eisenstadt, Mr. William E. McDonald, Mrs. Muriel Santmyers, Miss Mary K. Gimmy and Mrs. Haydee Ern. Special thanks are due Mr. Helmut A. Baranyi of the Project Staff and to Mr. Keith Kershner, Bureau of Research, Department of Public Instruction, for many direct contributions to the analysis of data and the completion of this report. The highest professionalism was shown by the over one hundred classroom teachers in the experiment who gave themselves to both the demands and pedogogical restraints of the Project. To this date these persons have worked "in the dark" without a knowledge of the outcomes of the experiment. Their compensation has been solely one of professional satisfaction and growth. They are truly professionals.

Philip D. Smith, Jr.
Project Coordinator
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SUMMARY

The teaching of modern foreign languages in American secondary schools has undergone two major changes in the past decade, classroom teaching strategy and the language laboratory. Both have been shown to be effective in small-scale controlled situations. The Pennsylvania Foreign Language Research Project was an attempt to determine the effectiveness of teaching strategy and language laboratory in the environment of the real school situation.

Funded under Title VII-A of the National Defense Education Act, a large scale experiment was conducted in 104 Pennsylvania secondary schools of all types and diverse geographic and socio-economic areas. Sixty-one French I and forty-three German I classes were assigned to one of seven possible teaching strategy-language laboratory combinations: "traditional", "functional skills" or "functional-skills + grammar" with tape recorders, audio-active laboratories and audio-record laboratories. Class assignment was random across functional skills and laboratory treatment.

For the purposes of the research study definitions of "traditional," "functional skills" and "functional-skills + grammar" strategies were defined by a selected group of foreign language educators which included Robert Lado, Stanley Sapon, Wilmarth Starr, W. Freeman Twaddell, Albert Valdman and Donald Walsh. Other prominent specialists assisted in various phases of the study. Rebecca Valette contributed by writing a foreign language Listening Discrimination Test for the Project.

Objectives of the experiment included:

1. To determine which of three foreign language teaching strategies is most effective;

2. To determine which of three language laboratory systems is best suited, economically and instructionally;

3. To determine the optimum combination of teaching strategy and language laboratory;

4. To determine the best predictors of success in foreign language learning;

5. To determine the interrelationships between foreign language skills;

6. To determine the relationship of strategy and system to student ability;

7. To identify and compare student attitudes and expectations toward each teaching strategy;

8. To identify levels of foreign language mastery attainable in the secondary school program;

9. To determine the strengths and weaknesses of selected commercial programs.

10. To identify teacher factors related to student achievement.

Students and teachers were given extensive pre-testing, mid-year and post-testing. Twenty-five discrete measures and twelve attitude/opinion indices were obtained on 2,171 students. Three hundred students received additional tests of speaking and writing.

Data analysis was based upon correlation and analyses of variance, covariance and regression. For the major portion the class/group mean was used as the statistical unit for analysis.

Results at the end of one year indicated:

1. "Traditional" students exceeded or equalled "Functional Skills" students on all measures;

2. The language laboratory systems as employed twice weekly had no discernable effect;

3. There was no "optimum" combination of strategy and system;

4. The best combination of predictors of success were the MLA Cooperative Classroom Listening Test, the Modern Language Aptitude Test and Language I.Q. as measured by the California Test of Mental Maturity (Short Form).

5. Females achieved better than males;

6. Student attitude was independent of the strategy employed;

7. "Functional Skills" classes proceeded more slowly than "Traditional" classes; and

8. There was no relationship between teacher scores on all seven portions of the MLA Teacher Proficiency Tests and the achievement of their classes in foreign language skills.

The study continued through a second year of instruction, observing over 1,100 students of the original population and with a seven hundred new student replication of the first year study. A comprehensive report is now in progress.

AN ASSESSMENT OF
THREE FOREIGN LANGUAGE TEACHING STRATEGIES
UTILIZING THREE LANGUAGE LABORATORY SYSTEMS

SECTION I - INTRODUCTION

The role of modern foreign language education in the American educational process has assumed major importance in recent years. Long a major segment of the curriculum, the improvement of modern foreign language instruction at all levels has become "in the national interest."

The Commonwealth of Pennsylvania has long been committed to the teaching of foreign languages in the public schools. Ample testimony to this commitment is illustrated by the fact that hundreds of language laboratories are installed in its public schools and 20 percent of the teachers of foreign languages have attended NDEA summer institutes. Student enrollment in foreign language courses varies between 17 and 20 percent of the secondary school population. In support of the foreign language program the State has mandated, "... a minimum of a four-year sequence of a modern foreign language shall be offered by each school system" and requires for certification in the teaching of foreign languages that prospective candidates receive passable scores on the MLA Foreign Language Proficiency Test for Teachers and Advanced Students (Educational Testing Service, 1962).

Implicit in this strong state support for the teaching of languages is the responsibility to provide expert advice on problems of teaching methodology which ultimately determines the effectiveness of the language program. Yet, attacks on the purported usefulness of the language laboratory have been instrumental in raising doubts in the minds of both professional educators and interested lay persons previously convinced of its effectiveness. It is indeed surprising that, aside from extensive authoritative statements on the subject, there is little empirical research that can be cited as an effective rebuttal to these challenges. It was therefore important that the profession initiate a study for resolving several basic unanswered problems related to secondary school foreign language instruction.

The purpose of this research was to determine the most effective way of integrating the language laboratory into one or more of several alternative teaching strategies. It proposed to investigate this problem as it relates to foreign language teaching programs commonly found in the public secondary school classroom. Present plans are to follow the participating students for the three years that they study the foreign language. However, the first phase of the research reported herein concerned itself with evaluating only the first year of instruction.

Although this research was conducted within the Commonwealth of Pennsylvania, the area of the Department's jurisdiction, there can be little doubt that the results will be applicable to many schools throughout the nation. This was assured by utilizing schools that were socio-economically representative and by minimizing the degree to which typical teaching conditions were to be modified. Also, the instructional and testing materials were those commonly used in the teaching of foreign languages in the secondary schools.

BACKGROUND OF THE PROBLEM

Essentially, the profession is confronted with two sets of related questions:

1. Given several alternative teaching approaches to foreign language instruction which of these is better? and

2. Which of the commonly used language laboratory systems is most effective as an adjunct to foreign language instruction?

On the one hand, there is the historically older, and more widely practiced approach to foreign language instruction known as "grammar-translation" or "traditional." In opposition to this there is developing increasingly wide support for the "audiolingual" or "functional skills" approach, the origins of which extend as far back as the seventeenth century. Currently, it is receiving its greatest support from findings in linguistic science. The proponents of these two schools are in disagreement on basic assumptions regarding the nature of language learning and different priorities in selecting foreign language objectives. Each advances a distinct set of methods designed to achieve the terminal language behaviors each deems most important.

It must be emphasized that the terminal behaviors expected of these two approaches to foreign language learning are indeed distinct.

The "traditional" approach is designed to give the student "...conscious control of the phonological, grammatical and lexical patterns of a second language." (Carroll 1965) Primary importance is attached to developing an understanding of the language. Facility in its actual use will then develop as the language is used in real situations.

In contrast, the objective of the "functional skills" approach is to develop the skill to speak the foreign language in everyday situations; language analysis can be undertaken as a separate study after effective control in using the language has been gained. This dichotomy is reflected in the basic design, the procedures and the testing program of this investigation.

Traditionally, foreign language instruction stresses student mastery of the formal grammar of the target language. This emphasis on grammar can be traced to the influence of eighteenth-century grammarians who "assumed the existence of a universal grammar founded in universal reason and embodied in its purest state in the Greek and Latin of classical literature" (Guth, 1964). The textbook, consisting of carefully graded reading selections and accompanying grammar lessons, is the traditionalist's essential pedagogical tool. The assumption is that proficiency in the language can be acquired by learning a set of grammatical rules to which the language is supposed to conform and by mechanically applying these rules. Coleman's (1929) study, which has had wide influence on the teaching of foreign languages in the secondary schools, recommended the single objective of developing reading proficiency as being realistically attainable under typical classroom conditions. That oral mastery has never been a serious expectation of the foreign language program is clearly demonstrated by the almost exclusive use of paper-pencil tests to evaluate student progress in language mastery.

While, as earlier pointed out, the "audiolingual" emphasis in modern foreign language teaching has roots extending back many years, the recent dramatic changes in the approach to foreign language instruction are, in no small measure, due to the findings of linguistic science during the past 30 years. Johnston and Seerley (1961) note several linguistic propositions that have immediate implications for the high school language program. "Language is speech. The written form comes later, considerably later in the progression of language learning which is first hearing and speaking and then reading and writing." In sharp contrast to the formalistic traditional teaching methods, many linguists claim that language learning is a behavioral skill and not an intellectual discipline. Developing this skill, like any other, requires the careful cultivation of language habits.

that are an automatic, almost unconscious, performance of highly complicated physical and mental processes. Comprehension and accurate reproduction of the sounds of a language, which are the major objectives of the audiolingual approach, can only be achieved by imitating a native speaker or one who has mastered the native accent.

Instead of sole reliance on the textbook, the audiolingual teacher employs a set of teaching techniques and materials specifically designed to develop oral and listening facility. For example, the "dialogue" rather than the reading selection, is the primary instructional tool for the beginning student. A dialogue is a recorded conversation focusing on a real situation which the student can understand, identify with, and enjoy. Its language is the standard, authentic, and contemporary informal language that would be used in equivalent circumstances by native speakers of the same age as the American students in the class. After extensive practice, using such recently devised techniques as modeling, full- and part-choral repetition with build-ups, double repetitions, and constant correction, each student is expected to master the complete dialogue. Mastery implies that the student be able to respond automatically with appropriate selections from the dialogue. Contrary to the traditional program, the audiolingual program assesses student proficiency in the listening and oral skills in addition to testing reading and writing proficiency.

The emphasis on imitation, practice, and repetition to the point of "over-learning" encouraged many schools that adopted the audiolingual approach to install language laboratory facilities. The usual classroom setting of 30 students per instructor is wholly inadequate if the recommended 15-20 minutes of daily oral practice is to be followed. In the laboratory, each student is able to practice individually without disturbing other students. In addition, Hayes (1963) notes that the language laboratory provides native models of the foreign language for imitation, extensive structure drills, a variety of native voices necessary for understanding the language in its natural setting, and facilities for testing each student for listening and speaking ability.

Resolving these issues is important because the current ferment in foreign language instruction represents a major curricular change comparable to the revisions that the secondary school science and mathematics programs have undergone. Furthermore, discarding older programs and investing in audiolingual materials and laboratory equipment is a financial investment of significant proportions. Careful study and deliberate evaluation are important factors of any decision for change.

PURPOSES AND OBJECTIVES

The unanswered questions that are directly and indirectly related to foreign language instruction in the secondary school range across the entire spectrum of language learning. Carroll (1963) cites over 50 specific problems in the area of foreign language learning that would benefit from further research. Certainly, not all of these enjoy the same priority, and no single investigation can direct its attention to any significant number of these. Consequently, the fact that the proposing agency was a state department of education served to delimit the areas in which to concentrate its research efforts. The following guidelines proved useful in selecting the specific problems.

The problems selected had to be...

1. classifiable as applied research, i.e., problems leading to a solution which would be beneficial to present classroom teachers, school administrators, and/or producers of classroom materials,

2. important and substantive issues confronting language teachers, school administrators, and/or producers of classroom materials,

3. independent of the prior solution of other as yet unsolved problems,

4. amenable to investigation within the existing administrative framework of participating schools. Modifications that might be required for the research should not tend to create an artificial situation nullifying generalization of results to other teaching conditions.

Of particular significance was Carroll's (1963) advice:

> It may be recommended that useful experiments in foreign languages can be conducted by adhering fairly closely... to patterns of teaching and types of teaching materials which have already been developed and found necessary by foreign language teachers.

The two broad areas of concern in this investigation were determining (1) the effects of the audiolingual approach upon student achievement in the learning of a second language, and (2) the type of language laboratory equipment that is most efficient in achieving the goals of the audiolingual program. The study also gathered information related to student achievement in each of the four language skills and the attitude associated with each of the experimental treatments.

Another important purpose in this study was the role of a state education agency in identifying a significant research problem and in implementing the experimental study. The Department of Public Instruction is strategically situated to identify problems of concern to public schools. In implementing the study the Department utilized the personnel and talents at one of the State Colleges. This partnership between a state education agency and an affiliated state institution of higher education should provide a model for future research studies.

RELATED RESEARCH

In surveying the enormous research literature of foreign language teaching it was decided to omit references to studies which, while pertinent to any investigation of language instruction, do not relate directly to the specific experimental variables of this proposal. Reference citations are further limited to those which have relevance to language instruction at the secondary school level.

Coleman (1929) in an extensive survey of foreign language teaching practices found conditions chaotic. In spite of the varied methods and materials, little or no evidence was discovered to support widely accepted practices. The report emphasized the need for evaluating the effects of the various practices under typical American classroom conditions. The Army Specialized Training Program (A.S.T.P.) was developed with the assistance of linguistic scientists, and is considered by many to be the precursor of the current audiolingual trend. Birkmaier (1960) reports that a completely objective evaluation of the Army program was never made.

Scheuler (1944) doubted that reading mastery could best be obtained by means of the aural-oral methods employed by the A.S.T.P. Carroll (1963) reported,

> Proponents of 'new-type' courses which initially emphasize audiolingual skills claim, however, that reading skills will be more fluent and facile when the teaching of reading is delayed until the student has achieved a certain degree of mastery of audiolingual skills. There is no research information, however, to indicate whether this claim is sound or how long the teaching of reading should be delayed.

Following widespread interest in the A.S.T.P. and adoption of its techniques the Rockefeller Foundation supported a broad survey of the teaching of a second language. Agard and Dunkel (1948) conducted the study and reported the following results:

1. Few students in the aural-oral programs were able to attain "spontaneously fluent speech" in one or two years time.

2. The experimental groups had consistently superior pronunciation compared to conventional groups but lagged in reading proficiency.

3. Higher motivation was discerned among the aural-oral students but interest for many decreases as the material becomes more demanding.

4. Low correlations of the reading and aural test results suggest that these are separate and independent skills which must be individually developed.

Although Carroll(1963) found "much of value in this study," he describes it as deficient in "exact controls and rigorous experimental design."

Most of the efforts following the Agard-Dunkel (1948) study consisted of materials development for audiolingual instruction. Lacking instructional materials, standardized tests to evaluate listening and speaking achievement, and adequate laboratory facilities to accomodate the new program demands, little useful research comparing new and conventional programs was possible (Birkmaier, 1960). Carroll (1963) dismisses most of the available studies as being "poorly controlled or otherwise deficient from the standpoint of valid research methodology."

Pickrel, Neidt, and Gibson (1958) studied the value of tape recordings in junior high school Spanish classes. It was demonstrated that the use of tape recording is an effective method in teaching conversational Spanish when the teaching is based on tapes prepared by a Spanish specialist. Buch (1963) compared the effectiveness of four different language laboratory arrangements in beginning French. He reports that the overall best results on conventional and audiolingual tests was achieved by the group that spent eighty percent of their laboratory time with audio-active equipment and twenty percent of the time with the record facilities. Although meticulous care was taken to develop reliable, unbiased, and accurate judge ratings of the audiolingual skills the investigator notes several weaknesses in the design which limit generalizing the results. Each experimental treatment was administered to only one class, only one teacher was involved, students were evaluated during the first year only, and the materials were not those normally intended for an audiolingual program.

A study that has attracted considerable interest in foreign language teaching circles was conducted by Keating (1963). About 5,000 students from 21 school districts participated. They represented those who studied French at Levels I, II, III, and IV. For the three skills tested--reading comprehension, listening comprehension, and speech production--significant differences favored the no-laboratory group in nearly all cases. "In only one instance, that of speech production scores at Level I, was there found a significant difference that favored the laboratory group." The consistently poor performance on the part of the "lab" groups certainly warrants further study. However, a careful reading of this study raises serious doubts regarding the generalization of these results to other foreign language teaching situations.

The author of that study notes on page 24, "a fourth limitation of this study is...this study cannot be considered an experiment in any proper sense...since all the students tested were involved in on-going programs." As if to emphasize the research design limitations the following quotation from page 38 is instructive, "...absolutely no provision was made for central control of any kind over the independent districts." A detailed critique of this study was made by Berger (1963) which analyzes weaknesses in teacher training, student matching, appropriateness of instructional materials, and soundness of the evaluation procedures.

The Bureau of Audio-Visual Instruction, Board of Education of the City of New York (1963) reported on two related studies which are to date the most careful and extensive studies on the effectiveness of the language laboratory in high school. The first "proposed to test measurable improvement in competence in speaking French and in comprehension of spoken French without significant loss in reading comprehension and in written aspects of language study." Significant gains were made by the laboratory groups in speech and listening skills without loss in traditional skills as measured by a standardized French test.

The second of these studies was concerned with the relative effectiveness of three types of language laboratory experiences. Essentially, one group used recording equipment daily, another used only nonrecording equipment daily, and the third group used recording and nonrecording equipment.

> In the global rating (overall quality) of speech, the Record-Playback-Daily group showed the greatest gain... and all experimental groups gained more than the control group in global rating of speech...In no measure did the control (traditional) group make gains significantly greater than all lab groups, whereas, the Record-Playback-Daily group stands first or second in thirteen out of fourteen measures.

Here again the instructional methods, materials, and evaluation instruments were "transitional" and the number of both pupils and teachers is insufficient to permit a definitive conclusion based on the findings.

The most extensively reported research on comparing the two teaching strategies, "traditional" and "audiolingual" or "functional skills," is that of Scherer and Wertheimer (1964). The Scherer-Wertheimer study showed that, at the end of two years of college instruction, students who had a first-year audiolingual background did better in listening and speaking but were equal to or worse than traditional students in reading, writing, and translation. Evaluation of the investigation depended to a great degree upon correlations and the direct comparison of the means of the two groups. This study, while a classic, contained some factors which the present investigation was determined to avoid. Among these were (1) a research population consisting of college students in one language only, (2) the creation of special teaching materials, (3) the small number of students completing the two-year study (N 49) and (4) the inability of the investigators to maintain the separation of the two groups under investigation.

In 1964 the School District of Philadelphia undertook a nineteen school assessment of "traditional" and "audiolingual" approaches in French and Spanish utilizing the text as the instructional variable. (Sandstrom and Rofman, 1967) Each school had both audiolingual and traditional classes assigned. Numerous meetings and workshops helped control the teacher variable.

Evaluation of the experiment was based upon (1) teacher rating of student performance and (2) the MLA Cooperative Classroom Tests in Listening and Reading administered at the end of the two-year period of instruction. No pre-experimental measures are reported. Speaking and Writing tests were administered but not used due to the small sample tested. While no statistical data is reported, the study concluded that the students in audiolingual classes performed better than "control" (traditional) students on evaluative criteria.

By 1964 no sufficiently realistic and generalizable research had been undertaken to shed light on specific questions on modern foreign language instruction facing the American secondary school: which strategy or laboratory system works best when translated from a specific local small scale setting into the larger reality of numerous secondary schools? To assist in developing answers to this question, the Commonwealth of Pennsylvania undertook the large-scale in sitio experiment which has come to be known as "Project 1330, (later, officially as No. 5-0683), An Assessment of Three Foreign Language Teaching Strategies Utilizing Three Language Laboratory Systems."

SPECIFIC OBJECTIVES OF THE RESEARCH

The investigation had as its specific objectives:

1. To determine which of three foreign language teaching strategies is most effective in achieving each of the four foreign language objectives, i.e. listening comprehension, speaking fluency, reading, and writing (main effects).

2. To determine which of three language laboratory systems is best suited, economically and instructionally, to the development of pronunciation and structural accuracy (main effects).

3. To determine the optimum combination of "strategy" and "system" in achieving the goals of the foreign language program (interaction effects).

4. To determine which variable, or combination of variables - IQ, total grade point average, and appropriate prognostic test - best predicts student achievement in foreign languages in each of the four foreign language skills and in overall language mastery.

5. To determine the intercorrelations among the four language skills.

6. To determine whether "strategy" and "system" effectiveness is related to student ability.

7. To identify and compare student attitudes toward each of the teaching strategies and language laboratory systems.

A. Which teaching procedures in both the traditional and audiolingual approaches generate student interest:

B. The factors which motivate a student to study a foreign language;

C. The degree to which the experimental and traditional programs fulfill student expectations in language mastery;

8. To identify levels of foreign language mastery that are attainable in the secondary school language program.

9. To determine the strengths and weaknesses of selected commercial programs; and

10. To identify teacher factors related to student achievement.

SECTION II - METHOD

PART I - THE EXPERIMENTAL DESIGN AND CONTROLS

The basic design of any experiment is, of course, determined by the specific objectives of the study with the concomitant influences of the environment and evaluative techniques. Initally conceived by Emanual Berger, Research Associate, Bureau of Research, Department of Public Instruction, the research schematic was further refined by a number of persons involved in the early stages of the Project. Among these were Dr. N. Sidney Archer of the Bureau of Research, Department of Public Instruction; Dr. Robert W. Cannaday, Jr., then Modern Foreign Language Coordinator for the Bureau of General and Academic Education, Department of Public Instruction; Dr. Alfred D. Roberts, Chairman of the Department of Foreign Languages, and Dr. Milton C. Woodlen, Director of Research, both at West Chester State College.

RATIONALE FOR THE EXPERIMENTAL DESIGN

Discussions among these men and others resulted in the establishment of proposed guidelines and objectives within which framework the actual experimental design had to function. The proposed research, by incorporating a number of factors omitted from reported studies, attempted to preclude some of the criticisms of research studies noted in the preceding section. Specifically, it was planned to more effectively control teacher behavior by means of (1) utilizing large numbers of teachers; (2) teacher testing; (3) employment of teachers within certain experience parameters; (4) teacher orientation and training; and (5) frequent observation of classroom behavior. Randomization of possible biasing factors was attempted by including large numbers of classes and students from many broadly representative schools.

Materials and testing instruments were to be of a type widely used and readily available to all schools. Statistical methods used in evaluation were to be as extensive and as intensive as the state of the art permitted.

A need was felt to include a "middle-of-the-road" approach between the "traditional" and the "functional skills" approaches. This reflected the thinking of a considerable segment of the modern foreign language teaching profession and is evident in the literature, particularly in the approaches advocated by Rivers (1964), Carroll (1964), and Belyayev (1964).

Accordingly, three teaching strategies were envisioned: the traditional method (TLM), the functional skills method (FSM), and a combination of functional skills plus exposure to formal grammar (FSG). In the same light, the three most widely used electro-mechanical aids needed to be included, the classroom tape recorder (TR), the listen-respond or audio-active (AA) language laboratory or electronic classroom and the audio-record (AR) language laboratory.

ABBREVIATIONS

To facilitate reading of the accompanying tables and text, note that the following abbreviations are used extensively in the reporting:

TLM	Traditional Method
FSG	Functional Skills Grammar (Method)
FSM	Functional Skills Method
TR	Tape Recorder
AA	Audio-Active Language Laboratory
AR	Audio-Record Language Laboratory
M	Male
F	Female

These will often be used in conjunction, i.e. FSM-AA-M.

With these three teaching strategies and three audio assistance systems in mind, the following specific procedures were established.

THE EXPERIMENTAL SCHEMATIC

Due to statistical considerations, the experimental unit was the intact class, following the "Nonequivalent Control Group Design"--Experimental Design 10--described by Campbell and Stanley (1963). The arrangement of teaching strategies and systems was patterned on the methods of "The Factorial Design (two factors)" discussed in Lindquist (1953). This type of design may be considered preferable in State-directed, in sitio research undertakings in which existing administrative practices have to be honored. Also, "I'm-a-guinea-pig attitude" Campbell and Stanley (1963), is minimized when utilizing intact classrooms, and without differential recruitment related to experimental treatment, the study may approach true experimentation.

The rationale for selecting "factorial design" procedures were (1) it provided increased precision in that the experimental variable(s), e.g., the specific teaching strategy, was employed across different systems; (2) it facilitated analysis of interaction effects in addition to studying the main effects. Finally, the experiment provided teacher, school, and school system replication.

The three teaching strategies and three language laboratory treatments then fell into a seven-celled experimental schematic:

FIGURE I

THE EXPERIMENTAL CELLS

Traditional	X

	Classroom Tape Recorder	Audio-Active Laboratory	Audio-Record Laboratory
Functional-Skills + Grammar	X	X	X
Functional Skills	X	X	X

The asymmetrical design resulted from the fact that students in the traditional classes were not expected to utilize language laboratories or classroom tape recorders other than for presentation of materials of a "cultural" or "enrichment" nature.

Independent Variables: These were the (1) foreign language teaching strategies, (2) the language laboratory systems, and (3) the strategy-system combinations.

Dependent Variables included: (1) achievement scores in each of the skill areas at selected points during the academic year, at the end of the academic year, (2) student attitudinal and interest factors, and (3) the assessment of relevant instructional procedures.

Languages: The languages studied were French and German. The inclusion of the most popular foreign languages taught in the public secondary schools was due to the following considerations:

a. It increased substantially the ability to generalize the results. If only one language was studied the findings might not be applicable to other languages with different structures. This alone warranted the inclusion of one Romance and one non-Romance language.

b. Originally the inclusion of Spanish was strongly supported by the Department of Public Instruction's foreign language specialists and project consultants. Dr. Albert Valdman reported that it was extremely difficult to get a group of foreign language teachers who taught different languages to work on problems that seemed to be of mutual concern. Each felt that his own language presented unique problems. Independent of the conclusiveness of the results, teachers whose language was not among those studied would be skeptical that they could apply the experimental findings in their teaching. However, since the study of more than two languages seemed unwieldy and expensive, the investigators concentrated their efforts on the study of French and German, representing significantly different types of languages.

POPULATION AND SAMPLE

In the most restricted sense, the population to which inferences from the Project findings would apply is the "hypothetical" parent population - which is the group consisting of all individuals "like those in the experiment." (Lindquist, 1953) In this case these would be the teachers, students, and schools with the characteristics listed in the discussion of the sample.

However, a survey of schools in Pennsylvania with language laboratory installations supports extending the inferences to the "real" population of all schools, teachers, and students in the Commonwealth, and possibly in the United States. This survey revealed that the schools reporting language laboratories are broadly representative in geographic location, school and district size, teacher ability, instructional expenditure per child, and pupil ability. Installation of the laboratories in some schools and not in others might be readily attributed to other factors irrelevant to the outcomes of the experimental treatment.

Soon after the Project became a reality, school superintendents throughout Pennsylvania were apprised of the experiment and invited to attend regional discussion conferences to consider the proposal in detail. These meetings were held on March 29, 30 and 31, 1965, at Harrisburg, West Chester and Allentown and again on May 4 at California, Pennsylvania.

Approximately sixty public school representatives attended each of the four meetings.

The program for each conference was essentially the same: the demonstration of the need for educational research in naturalistic settings by Dr. N. Sidney Archer, a review of research in modern foreign language by Dr. Alfred D. Roberts and the presentation of the research proposal by Mr. Emanuel Berger. In each case this was followed by a question period to allow those administrators and curriculum planners in attendance to clearly understand the program.

By the end of the 1965 school year, one hundred and twenty teachers had been tentatively identified as Project participants and had agreed to particpate. These persons and their administrators were asked to reserve a week in late August, 1965, for a pre-experimental training conference.

Each participating school district was also asked to identify a person to act as the local project Coordinator, freeing the Superintendent from direct concern with minor administrative affairs. In many cases this person was an Assistant Superintendent or Curriuclum Coordinator. They were to prove invaluable to the later relatively smooth functioning of the experiment.

In anticipation of embarking upon a program of evaluation of the effectiveness of the language laboratory, a survey of selected teacher characteristics and laboratory facilities was undertaken. A questionnaire was designed to identify teacher qualifications for teaching the major foreign language, the specific languages being taught, the description of the equipment, and the number of students enrolled in language courses at the specified school. This was sent to each of the secondary schools in the Commonwealth reporting a language laboratory.

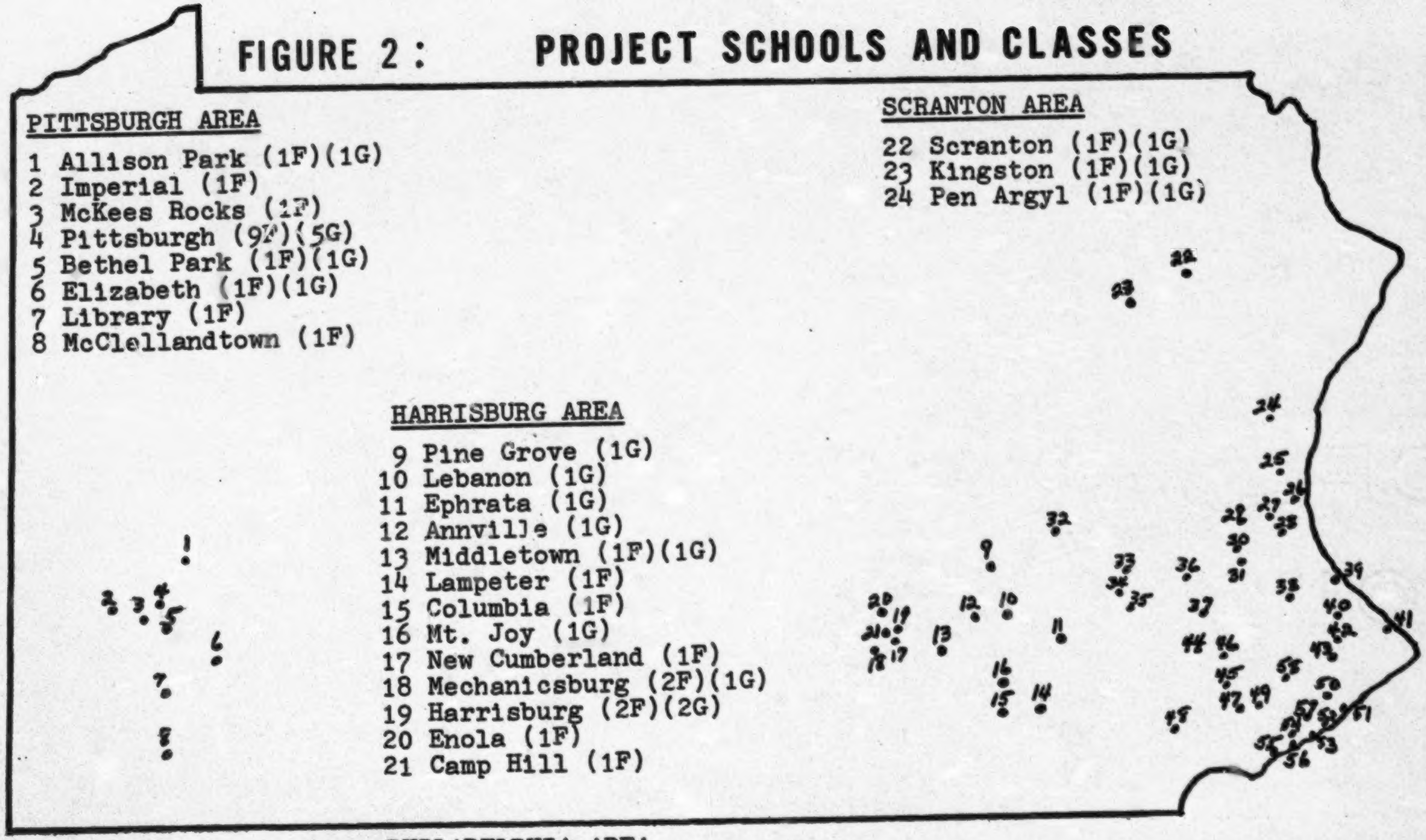
The sample schools were selected from among those responding to the survey. Those schools indicating a willingness to participate, which also had the other experimental requisites and ready geographic accessibility, consitutued the pool from which the final choice of experimental subjects was made. The specific school and teacher characteristics required included:

(Note that items 1 and 4 below were not necessarily applicable to the traditional group).

1. The school had a language laboratory.

2. Willingness to abide by procedures demanded by research requirements.

FIGURE 2: PROJECT SCHOOLS AND CLASSES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PITTSBURGH AREA

1 Allison Park (1F)(1G)
2 Imperial (1F)
3 McKees Rocks (1F)
4 Pittsburgh (9F)(5G)
5 Bethel Park (1F)(1G)
6 Elizabeth (1F)(1G)
7 Library (1F)
8 McClellandtown (1F)

SCRANTON AREA

22 Scranton (1F)(1G)
23 Kingston (1F)(1G)
24 Pen Argyl (1F)(1G)

HARRISBURG AREA

9 Pine Grove (1G)
10 Lebanon (1G)
11 Ephrata (1G)
12 Annville (1G)
13 Middletown (1F)(1G)
14 Lampeter (1F)
15 Columbia (1F)
16 Mt. Joy (1G)
17 New Cumberland (1F)
18 Mechanicsburg (2F)(1G)
19 Harrisburg (2F)(2G)
20 Enola (1F)
21 Camp Hill (1F)

PHILADELPHIA AREA

25 Nazareth (1G)
26 Easton (2F)
27 Bethlehem (1F)
28 Hellertown (1F)
29 Allentown (1F)
30 Emmaus (1F)
31 East Greenville (1G)
32 Cressona (1G)
33 Leesport (1G)
34 Lauraldale (1G)

35 Reading (3F)
36 Kutztown (1G)
37 Boyertown (1F)(1G)
38 Fairview Village (1F)(1G)
39 Kintnerville (1G)
40 Doylestown (1F)(1G)
41 Morrisville (1G)
42 Johnsville (1F)(2G)
43 Horsham (1F)(1G)
44 Pottstown (2F)

45 Plymouth Meeting (1G)
46 Royersford (1G)
47 Malvern (1F)
48 Coatesville (1F)
49 Berwyn (1G)
50 Havertown (1F)
51 Philadelphia (6F)(4G)
52 Upper Darby (1F)
53 Glenolden (2F)
54 Media (1F)

55 Eddystone (1F)
56 Ridley Park (1F)
57 Drexel Hill (1G)
58 Norristown (1F)

3. Offering of a three and/or four-year sequence of French and German.

4. Teachers had been trained, or were willing to enroll in a course in audiolingual techniques and language laboratory procedures.

5. Teachers had a "reasonable" command of the foreign language.

DEFINITIONS OF STRATEGIES

In order to differentiate precisely the objectives, rationale and characteristics of each of the three teaching strategies, a select panel of modern foreign language educators was convened. This group of consultants included:

Dr. Robert Lado, Georgetown University
Dr. Stanley Sapon, University of Rochester
Dr. Wilmarth H. Starr, New York University
Dr. W. Freeman Twaddell, Brown University
Dr. Albert Valdman, Indiana University
Dr. Donald D. Walsh, MLA Foreign Language Program

Meeting for two days in Philadelphia, this group precisely defined the three teaching strategies and three language laboratory systems under consideration.

TEACHING STRATEGY I: THE TRADITIONAL METHOD

The major objectives of foreign language instruction according to this method are:

1. To read with facility in the foreign language.
2. To translate from the foreign language into English and vice versa.
3. To develop an appreciation for the foreign country's culture, its people and its heritage.
4. To develop a better understanding of the syntax and structure of the student's native language.

Carefully graded reading selections in the text incorporate both the grammar to be learned and the vocabulary items. The student practices the grammar rules by applying them in written form to sample sentences following the lesson. Vocabulary lists are memorized and practiced through translation from English into the foreign language.

Rationale: Traditional Method

The basis for the traditional approach is rooted in both common educational sense and a history of successful experience. Few would doubt that proficiency in a language's grammar accompanied by command of its lexicon will result in the stated objectives. Also, those who have taught and assessed student achievement in foreign language through the years report that effective teaching procedures, as in other academic subjects, produce the desired results. Unless there is convincing evidence to the contrary, "traditionalists" feel justified in supporting a "proven" method in preference to programs that have as yet to prove their worth in the classroom setting. Finally, educators maintain that a well educated person should be acquainted with the literature and culture of other countries.

List of general criteria - Traditional Method.

A. Use of native tongue in the classroom predominant. Target language not to be used for purposes of communicating instructions or information to students.

B. Translation
  1. Directly from native tongue to target language
  2. Reading by translation from target language to native tongue

C. Vocabulary
  1. Word for word equivalents
  2. Academic and literary lexicon stressed

D. Grammar
  1. Analysis before application
  2. Language organized into word lists, paradigms, principal parts, rules
  3. Analysis in depth of grammatical structures

E. Testing
  1. Grades based on written tests
  2. Use of vocabulary and idiom quiz
  3. Frequent use of dictation test
  4. Use of tests requiring thorough knowledge of paradigms or lists

F. Culture - the following cultural areas are emphasized:
  1. Great historical and literary personalities
  2. Monuments
  3. Masterpieces of art, music and literature

G. General orientation of traditional program is academic and intellectual.

Expected level of proficiency in four skills - Traditional Strategy

A. Listening comprehension
  1. At end of semester

        - a. Understand simple words and phrases carefully and slowly enunciated
        - b. Distinguish gross phonemic variations

    2. At end of year
        - a. Understand simple directions and basic conversational phrases spoken at slower than normal speed
        - b. Distinguish most phonemic differences

B. Speaking
    1. At end of semester
        - a. Ability to repeat sounds, words and phrases previously learned
        - b. Respond with little hesitation to simple questions using previously memorized answers

    2. At end of year
        - a. Ability to repeat after the model all sounds, words and phrases
        - b. Ability to vary basic structural patterns in responding to simple questions

C. Reading
    1. At end of semester
        - a. Read and understand simple prose with known vocabulary
        - b. Recognize and identify grammatical structures contained in this prose

    2. At end of year
        - a. Read and understand short narratives
        - b. Recognize grammatical structures
        - c. Sight reading of simple prose passages

D. Writing
    1. At end of semester
        - a. Write correctly basic conversational phrases
        - b. Ability to take dictation of familiar material

    2. At end of year
        - a. Ability to compose short prose passage showing correct usage of grammar
        - b. Ability to take dictation of some unfamiliar material with known vocabulary

TEACHING STRATEGY II: THE FUNCTIONAL SKILLS METHOD

The primary objective of foreign language instruction according to the "functionalists" is that the student be able to use the language as it is used in the foreign country. It is considered essential that the four language skills be taught in a progression - listening first to the spoken word, following by repeating orally that which was heard, then reading the graphic symbols that were both heard and spoken, and, finally, writing that which was heard, spoken and read.

The "functional skills" are taught by means of the dialog and its associated acitivities. There is opportunity for extensive student practice in both listening and speaking in the target language. Vocabulary is learned only in context while formal prescribed grammatical analysis is avoided.

Rationale: Functional Skills Method

The principle advanced by those supporting this method is that, essentially, language is speech. Written symbols are a derived and secondary form of language. We are able to use our mother tongue effectively long before we can read or write the graphic symbols representing the spoken word. Furthermore, it is claimed that language learning is a skill, not an intellectual discipline. It follows, then, that methods effective in teaching science and mathematics are not ideally suited for cultivating language habits. More appropriately, the student is instructed to practice language forms to the point that his responses are automatic, in much the same way that he uses his own language.

List of general criteria - Functional Skills Method

A. Use of target language in classroom
  1. By the student: for all responses
  2. By the teacher: for daily routine communication

B. Native tongue to be used only for describing grammar and syntax

C. Sequence of learning
  1. Hearing
  2. Speaking
  3. Reading
  4. Writing

D. Grammar
  1. Descriptive rather than prescriptive
  2. Incidental to functional skills being taught

E. Reading
  1. Printed material always presented as a transcription of spoken forms
  2. As direct communication without the intermediary of translation from the target language to the native tongue

F. Writing - learned first as a transcription of spoken forms

G. Testing - written and oral tests given in order to test for listening comprehension and speaking proficiency as well as reading and writing skills

H. Culture - "total culture" as reflected in language behavior is taught as opposed to refinement culture

Expected level of proficiency in four skills - Functional Skills Method

A. Listening comprehension
   1. At end of semester
      a. Phonemic discrimination - all basic sounds of the language
      b. Understanding of basic words and phrases

   2. At end of year
      a. Phonemic discrimination - nearly all phonemic differences
      b. Understand simple conversation spoken at normal speed

B. Speaking
   1. At end of semester
      a. Repeat any word or phrase with good accent and intonation
      b. Ability to respond to simple questions and to vary form and structure in simple directed conversation

   2. At end of year
      a. Repeat sentences with correct accent and intonation
      b. Engage in simple conversation on a variety of basic everyday situations
      c. Ability to vary spontaneously any basic structures already learned

C. Reading
   1. At end of semester - read and understand directly (without translating) simple dialogs
   2. At end of year - read and understand directly dialogs and simple prose narratives dealing with everyday situations

D. Writing
   1. At end of semester
      a. Reproduce in writing simple phrases previously learned
      b. Reproduce from dictation basic dialogs already learned

   2. At end of year
      a. Ability to answer questions in written form with spontaneous variation of forms and structures previously learned

b. Ability to express in writing simple concepts dealing with everyday situations

TEACHING STRATEGY III: THE FUNCTIONAL-SKILLS+GRAMMAR METHOD

This condition subscribes to both the objectives and the basic methodology of the "Functional Skills Method." The major point of contention is how best to develop structural mastery - the basis of effective language usage - in the school setting.

According to this approach pattern drills are supplemented by explicit instruction in the appropriate grammar. Extreme care is exercised to limit the grammar to clarifying the pattern which was practiced during the dialog - (grammar is not taught independently of the language habits developed).

Rationale: Functional-Skills+Grammar Method

Essentially, there is no empirical evidence to support the elimination of formal grammar instruction in teaching a foreign language. Indeed, Mueller (1958) reported that students frequently fail to perceive grammatical signals even after extensive drills. Others argue that the manner in which a child learns his native tongue is not entirely analogous to the way an adolescent learns a second language in the classroom. In the latter case the student can "bring his intellect to bear on his problems and can speed up immeasurably through generalizations, shortcuts, and insights into the way the language operaties if, and when, he understands its structure analytically."

Finally, the accompanying explanation might serve to prevent possible student boredom when he indulges in repetitious practice for considerable period of time.

List of general criteria: Functional-Skills+Grammar Method

A. Use of target language in classroom
   1. By the student: for all responses
   2. By the teacher: for daily routine communication to pupils of instructions, cues and models

B. Native tongue to be used only for describing grammar and syntax

C. Sequence of learning
   1. Hearing
   2. Speaking
   3. Reading
   4. Writing

D. Grammar
   1. Descriptive rather than prescriptive
   2. Incidental to functional skills being taught

E. Reading
   1. Printed material always presented as a transcription of spoken forms
   2. As direct communication without the intermediary of translation from the target language to the native tongue

F. Writing - learned first as a transcription of spoken forms.

G. Testing - written and oral tests given in order to test for listening comprehension and speaking proficiency as well as reading and writing skills

H. Culture - "total culture" as reflected in language behavior is taught as opposed to refinement or prestige culture

Expected level of proficiency in four skills - Functional-Skills + Grammar Method

A. Listening comprehension
   1. At end of semester
      a. Phonemic discrimination - all basic sounds of the language
      b. Understanding of basic words and phrases - spoken at normal speed

   2. At end of year
      a. Phonemic discrimination - nearly all phonemic differences
      b. Understand simple conversation spoken at normal speed

B. Speaking
   1. At end of semester
      a. Repeat any word or phrase with good accent and intonation
      b. Ability to respond to simple questions and to vary form and structure in simple directed conversation

   2. At end of year
      a. Repeat sentences with correct accent and intonation
      b. Engage in simple conversation on a variety of basic everyday situations
      c. Ability to vary spontaneously any basic structures already learned

C. Reading
  1. At end of semester
    a. Read and understand directly (without translating) simple dialogs
    b. Understand grammatical functions in the reading material

  2. At end of year
    a. Read and understand directly dialogs and simple prose narratives dealing with everyday situations
    b. Ability to understand all grammatical functions in the readings

D. Writing
  1. At end of semester
    a. Write simple phrases previously learned with understanding of the grammatical functions involved
    b. Reproduce from dictation basic dialogs already learned

  2. At end of year
    a. Ability to answer questions in writing with spontaneous variation of forms and structures previously learned
    b. Ability to express in writing simple concepts dealing with everyday situations

LANGUAGE LABORATORY, SYSTEM I: CLASSROOM TAPE RECORDER

The simplest audio aid for the modern foreign language teacher is the classroom tape recorder. Its convenience and ease of operation as well as its low cost have made the tape recorder an integral part of the foreign language classroom even in schools equipped with more extensive facilities.

The inclusion of the classroom tape recorder alone as a "laboratory strategy" reflected the insistence of many teachers that it was as effective as a more elaborate language laboratory. Statistically it represented the minimum baseline or "control" strategy.

LANGUAGE LABORATORY, SYSTEM II: AUDIO-ACTIVE (LISTEN-RESPOND)

This constitutes one type of "language laboratory." Each student position is equipped with a microphone, amplifier and headset. Usually there is more than one tape recorder or other program source at the teacher console. Finally, the teacher console is wired for monitoring individual student performance.

The immediate and most cogent argument for this installation is the privacy and isolation afforded each student. Eliminating distracting noises is recommended if students are expected to discriminate new sounds that are distressingly similar to those of his own language and to other sounds in the foreign language.

It is also claimed that hearing his own voice following that of the tape master, with amplification of similar quality, allows for effective correction when there is disagreement. Multiple-program sources provide for small group instruction and facilitate flashbacks to previous lessons that require review.

LANGUAGE LABORATORY, SYSTEM III: AUDIO-ACTIVE-RECORD (LISTEN-RESPOND-COMPARE)

The addition of recording facilities at student positions provides the teacher with a significant tool in developing "functional" skills. Principally, the student records the master and his responses and then compares these during playback. Differing learning rates can be accommodated. This is a practical means for evaluating oral performances, and closer teacher supervision is possible than with less complete installations.

Competent language educators favoring the use of the record facility offer as support an argument based on the method by which language is learned. They claim that the learning of a foreign phoneme occurs as a result of conscious attention to the process of how it is produced. As a result, knowledge of the articulatory phonetics is a definite aid.

INSTRUCTIONAL CONTROLS

Careful control of the manipulative independent variables received primary consideration throughout the experiment. These controls concentrated on teacher adherence to the assigned treatment and included teacher measures, teacher training, instructional guidelines, periodic group workshops and careful observation and supervision.

TEACHER CONTROL

The principal sources of teacher effect are (1) differences in teacher ability due to training and/or experience, (2) teacher non-adherence to assigned conditions in the experimental program, and (3) the nonspecificity of the assigned treatment and the daily teacher responsibilities. Because teacher adherence to the assigned treatment is a most important factor to control, a number of steps were taken to minimize even unintentional deviations.

1. Teacher Numbers: The experiment was predicted on the basis of involving over one hundred teachers in an attempt to minimize bias due to teacher variation.

2. Teacher Ability Control: All teachers who volunteered to participate in the experiment were given the Foreign Language Proficiency Tests for Teachers and Advanced Students, (Educational Testing Service, 1962). In addition, teachers who had recently spent considerable time (two or more years) in the country where their foreign language is spoken were excluded. Participating teachers were expected to have had at least two years of teaching experience.

3. Control for nonadherence to assigned treatment:

a. Selection of Cooperating Teachers: Participants were selected from a pool of teachers who had the support of their schools and were willing to commit themselves in advance to the requirements of the experiment.

b. Pre-experimental Workshop: One of the single most important controls of the variables of the Research Project was the week-long orientation meeting and workshop held from August 22 through August 25, 1965. Here the Project Staff and participating teachers met with several Consultants on the campus at West Chester to discuss the implementation of the Project in detail.

The workshop provided for (1) an orientation to the need for the limitations on educational research; (2) a detailed introduction to the experiment; (3) several sessions on testing with particular emphasis on foreign language testing; and (4) the assignment of teachers to strategies and training in two laboratory types utilizing both college and local school facilities.

Each teacher was thoroughly briefed in his expected role and in the teaching strategy he was expected to employ. Detailed guidelines had been prepared for each teaching strategy and language laboratory treatment. Field Consultants and Workshop Consultants spent many hours in small group meetings training teachers in their assigned strategy.

Extra-Project Consultants for the workshop included:

Dr. Kenneth W. Mildenberger, Modern Language Association
Dr. J. William Moore, Chairman, Department of Education
  Bucknell University
Dr. N. Sidney Archer, formerly Director, Bureau of Research,
  Department of Public Instruction
Mr. Eugene Hogenauer, MLA Test Development Committee

Mrs. Mariette Reed, Educational Testing Service
Miss Terry Gamba, Foreign Language Specialist, D.P.I.
Mr. Harold Gruver, Hanover School District
Mr. Douglas Ward, Pittsburgh School District

The Project Staff had assumed that teachers agreeing to participate in the experiment were better professionally prepared than they appeared to be at the initial meeting. Many were totally unfamiliar with the text materials that they were to use with experimental classes. The pre-experimental training thus proved of great benefit in orienting teachers to the research project. Teachers were compensated for participation in training workshops, for periodic group meetings and for collection of additional student data.

In addition to the pre-experimental meeting, three bimonthly evaluation meetings were held in November, 1965, and January and March, 1966. At these sessions general discussions of matters pertaining to the Project and instructions relating to procedures were considered. A prominent feature of these sessions was the small group meetings structured around the various strategy-systems in which considerable attention was given to the problems peculiar to each group. Appropriate teaching techniques were demonstrated by selected teachers in each strategy-system and in panel discussions relevant topics were presented.

All teachers' meetings were held both on the campus of West Chester State College and in the Pittsburgh area to insure teacher attendance. A final meeting was held in May, 1965, to insure uniformity of final student testing dates and precedures. Mr. F. Andre Paquette of the Modern Language Association addressed the West Chester group while Dr. Joseph Mastronie of the University of Pittsburgh spoke to teachers in both western Pennsylvania and at West Chester.

TEXT MATERIALS

A complication of broad-scale research in the naturalistic setting of the public school classroom was revealed in the data submitted to the Project by prospective participating schools. The approximately eighty school districts indicated twenty-seven different sets of texts and instructional materials were utilized in the teaching of French and German. It was evident that this was one of the many variables which would seriously affect the results of the study. It was decided to reduce the number of tests to provide more homogeneity.

All participating classes were required to adopt one of the following texts during the two-year instructional period. Schools purchased the complete program. Analyses and guidelines were written by the Project Staff for each text (see Appendix).

FRENCH - *Cours Elémentaire de Français*, Dale and Dale
Parlez-Vous Français?, Huebener and Neuschatz
New First Year French, O'Brien and LaFrance
Audio-Lingual Materials
Ecouter et Parler, Côté, Levy and O'Conner

GERMAN - *A First Course in German*, Huebener and Newmark
Foundation Course in German, Hamberger and Ebelke
Audio-Lingual Materials
Verstehen und Sprechen, Rehder, Twaddell and O'Conner

INSTRUCTIONAL GUIDES

To assist in the adherence of teachers to assigned strategy and laboratory treatments, specific guides were established by the Project Staff. These were essentially the same for each instructional strategy, differing only slightly in detail of coverage depending upon the text under consideration. Samples are reproduced in the Appendixes for German only in the interest of economy since the French differed only in texts mentioned and units to be covered. Each teacher received the guidelines applicable to his assigned strategy and laboratory system.

For the Functional-Skills + Grammar classes the grammatical generalizations had to be written for those texts not including formal grammar. These were written by the Project Staff and included in the appropriate teacher's guide.

Teachers were expected to be thoroughly familiar with the guidelines and examples. They served not only as a basic blueprint for daily lessons but as a common reference point for discussions with the Field Consultants. These observers used the guidelines as a frame of reference for evaluation of teacher adherence to the assigned strategy.

FIELD CONSULTANTS

The Field Consultant was envisioned as the key figure in coordinating and unifying the many people involved in the Project. They participated in the writing of the guidelines, in the meetings with the language consultants, and were all competent and knowledgeable classroom teachers.

The Field Consultant was expected to visit each Project classroom about twice a month, discuss the experiences of the teacher and advise teachers and administrators of forthcoming Project activities. They were not concerned with judging teacher performance as it related to the local school situation but only as it concerned adherence to the assigned teaching strategy. The Field Consultant then was to observe, advise and to act in a liaison capacity.

Field Consultants completed a report form after each teacher visitation. This was intended to describe the lesson observed and to relate it to the assigned strategy. The preliminary instrument was changed in January, 1966, to one which allowed a more precise numerical assessment of adherence on a single page. These are reproduced in the Appendixes.

Throughout the Project the field observers met bi-weekly with the headquarters staff and reported on the progress of the investigation. Problems of policy and procedure were resolved and coordination of action insured by these frequent contacts which permitted discussions among the various Field Consultants.

Teachers deviating markedly from the assigned strategy-system were dropped from that assignment and from the Project. Often the teacher remained totally unaware of this action. Field Consultants traveled many thousands of miles to visit widely scattered Project schools. One Consultant remained in residence in the Pittsburgh area.

PART 2: CONDUCT OF THE RESEARCH

IMPLEMENTATION OF THE RESEARCH

With the granting of funds to support the proposed research under USOE Grant OE-7-48-9013-262, The Pennsylvania Foreign Language Research Project was established March 1, 1965, with headquarters at the Cooperative Research Center, West Chester State College. Located approximately twenty miles southwest of Philadelphia, West Chester is the largest of the Pennsylvania State Colleges. The Foreign Language Research Project Staff was added to the regular college faculty for fiscal purposes with academic rank based upon the state college personnel system. The Project received full cooperation and support from the college, including the services of the Data Processing and Computer Center.

As described in Section 2, one of the first undertakings of the Project was to enpanel a select committee of foreign language educators to establish precise definitions of the various teaching strategies and guidelines to be followed by teachers within each treatment. In addition, the counsel of several other noted foreign language educators was solicited on various aspects of the research design and evaluation. These included Dr. John Carroll, Harvard University; Mr. F. Andre Paquette of the Modern Language Association; Dr. Harold Bligh, Harcourt, Brace and World, Inc.; Dr. William Locke, Massachusetts Institute of Technology; Mrs. Eleanor Sandstrom, Philadelphia City Schools; and Mrs. Mariam Byran, Educational Testing Service.

PROJECT STAFF

The expected role of the Project Field Consultants was defined and criteria established for the postions. These included:

1. Pennsylvania permanent certification to teach either French or German.
2. Minimum of five (5) years of teaching experience.
3. Master's degree in secondary education or language field, or equivalent supervisory experience.
4. Experience in the use of the language laboratory.

Field Consultants were employed through the regular procedures established by the Department of Foreign Languages at West Chester State College. Four competent Consultants were employed and assisted actively in laying the groundwork for the experiment.

During the first year of the instructional phase of the Foreign Language Research Project, the following persons served on the professional Project Staff at West Chester State College:

Dr. Milton C. Woodlen, Ed.D., Coordinator
Director of Research and Data Processing
Dr. Alfred D. Roberts, Ph.D., Supervisor of Instruction
Chairman, Department of Foreign Languages
Mr. Ralph A. Eisenstadt, M.A., Field Consultant
Assistant Professor
Miss Mary K. Gimmy, B.A., Field Consultant
Instructor
Mrs. Muriel Santmeyers, M.A., Field Consultant
Assistant Professor
Mr. William E. McDonald, B.A., Field Consultant
Instructor
Mrs. Haydee O. P. Ern, M.E., Computer Programmer
Lecturer

ASSIGNMENT OF TEACHING STRATEGIES

Certain realistic impositions of the naturalistic setting of in sitio research influenced the assignment of participating classes to the several strategy-laboratory treatments. Many schools did not have any student recording facilities and could not be included for possible selection in the audio-record (AR) group. It was also considered unwise to assign teachers to a classroom teaching strategy to which they had a strong objection.

In the main, traditional classes were taught by teachers who expressed a preference for this strategy. Many teachers indicated a willingness to dedicate themselves fully to whatever strategy they were assigned. These and all the Functional Skills Method (FSM) and Functional-Skills + Grammar (FSG) groups were arbitrarily and randomly assigned to their strategies.

Laboratory treatments depended upon the individual facilities of each school. Schools with no laboratory facilities were, of necessity, assigned to the Tape Recording (TR) group. Laboratories with no recording facilities were by definition excluded from the AR group and were assigned to the Audio-Active treatment. In many cases laboratories had only enough recording facilities for part of the class. These classes were then envisioned as "split" classes, one small class of Audio-Recording (AR) within the same strategy. Students were assigned to each treatment by use of a random numbers table. Statistical analysis of interaction among these "split" classes was included in later data processing and evaluation.

It was possible to completely randomly assign fifty-three classes, thirty-one French and twenty-two German, among the Functional Skills, Functional-Skills + Grammar, Audio-Active and Audio-Record treatment combinations. The complete breakdown within each treatment is illustrated in Figure 3.

In order to avoid both direct competition and experimental contamination it was judged advisable to permit only one teaching strategy within each school building. Therefore, while an individual school could have several Project classes in both French and German, within that school only one teaching strategy was assigned.

TEACHER DATA

During the pre-experimental training sessions large amounts of data were collected on each participating teacher. This included the type of institution of higher learning attended, the major field of study and the degree granted, the amount of post-baccaleaureate study or graduate degree, and the number of years of both general and foreign language teaching experience. Also entered was the text the teacher would use during the experiment.

Teacher proficiency in the foreign language was determined by asking the teacher to rate his own ability in the speaking, reading and writing skills. In addition, every Project teacher was required to take all seven portions of the MLA Foreign Language Proficiency Tests for Teachers and Advanced Students. New teachers entering at various stages of the experiment were also required to take the test battery. Later, most Project teachers took the Valette French and German Listening Discrimination Tests. All objective scores were recorded for analysis.

Teachers' attitudes were assessed both before and after assignment to their experimental teaching strategy by means of semantic differential opinion scales. These were developed and standardized in two forms for use on both teachers and students.

TEACHER PREPARATION AND EXPERIENCE

Project teachers whose professional preparation was examined numbered fifty-seven in French and forty in German. Of these, nine French teachers and three German teachers attended state colleges. Liberal arts colleges were attended by twenty-six French and twenty German teachers. Twenty-one French and seventeen German teachers attended universities. Only one French teacher attended a technical college; none of the German teachers did so.

FIGURE 3

DISTRIBUTION OF CLASSES BY

TEACHING STRATEGY AND LABORATORY SYSTEM

	Tape Recorder	Audio-Active Laboratory		Audio-Record Laboratory	
		non-random assignment	true random assignment		
				part of class recorded	full class recorded
Traditional Method	French 11 German 6				
Functional-Skills + Grammar true random assignment	French 3 German 5	French 5 German 4	French 7 German 5	French 4 German 3	French 4 German 1
Functional Skills Method	French 3 German 4	French 8 German 2	French 9 German 8	French 4 German 2	French 3 German 3

Total: French = 61 classes, German = 43 classes

An examination of baccalaureate degrees indicated nineteen Bachelor of Science degrees among the French teachers and fourteen Bachelor of Science degrees among the German teachers. Thirty-six French teachers had received Bachelor of Arts degrees as did twenty-five German teachers. Of three teachers without degrees, two were French teachers and one was a German teacher.

The following data illustrates the major fields in college of French and German Project teachers:

	French	German	Spanish	Latin	For. Lang.	English	Science	Soc. Studies	Math.	Elem. Ed.	Music	Business	Arts and Lttrs.
French Teachers	39	2	1	2	2	7	0	0	0	3	0	0	1
German Teachers	3	23	1	3	1	0	1	2	2	1	1	2	0

The range of graduate hours was between 0 to 99 for both French and German teachers. French teachers averaged 68.7 semester hours and German teachers averaged 47.0 semester hours beyond the Baccalaureate.

The average teaching experience among French teachers was 9.5 years. The average for German teachers was 9.9 years. Experience ranged from 0 to 29 years among French teachers and from 0 to 41 years among German teachers.

French teachers averaged 6.6 years teaching French, .3 years teaching German and 1.3 years teaching other foreign languages. German teachers averaged 6.7 years teaching German, .9 years teaching French and 1.5 years teaching other foreign languages.

MEASUREMENT INSTRUMENTS

In order to duplicate the conditions and advantages available to the normal school district, the Foreign Language Research Project based its primary evaluation program on standardized instruments. All instruments were administered to the total student population with the exception of a ten percent random sample chosen for administration of the more lengthy and individualized portions of the final tests. In cases where standardized tests to evaluate certain student skills and attitudes were not available, instruments were produced for the Project.

TABLE 1

SKILLS AND INSTRUMENTS

Foreign Language Behavior	Criteria
1. Listening Comprehension	*MLA Cooperative Classroom Listening Test*
2. Listening Discrimination	Valette *Listening Discrimination Test*
3. Speaking	*MLA Cooperative Classroom Speaking Test*
4. Reading	*MLA Cooperative Classroom Reading Test* "Reading" section, 1939-41 *Cooperative Test*
5. Writing	*MLA Cooperative Classroom Writing Test* "Writing" section, 1939-41 *Cooperative Test*
6. Grammar	"Grammar" section, 1939-41 *Cooperative Test*
7. Vocabulary	"Vocabulary" section, 1939-41 *Cooperative Test*
8. Expectations	Student Expectations Scale
9. Attitudes	Student Opinion Scale (semantic differential)

PRE-EXPERIMENTAL TESTING

At the beginning of the 1965-66 year, immediately after the opening of school and before instruction in the foreign language commenced, a number of pre-experimental tests were given to students in Project classes. These had two purposes: (1) to measure student native ability and aptitude in order to permit the establishment of predictive criteria and (2) to determine the amount of prior exposure of Project students to foreign language instruction. While it has been maintained that foreign language permits an ideal setting for research since it presumes a "zero" starting point (Carroll, 1963), it was decided to administer a foreign language pre-test due to the possibility of student exposure to some programs of foreign languages in the elementary schools, to instruction by television, to exposure by travel and the possibility of a foreign language background in the home.

During the first few days of school students took the *California Short-Form Test of Mental Maturity*, *The Modern Language Aptitude Test* (short form), the *Cooperative French Test* or the *Cooperative German Test*, and the *Listening Comprehension* portion of the *MLA Cooperative Foreign Language Tests*. Finally, each student completed an attitude and orientation inventory, the *Student Opinion Scale*, to assess his feelings toward foreign language instruction before such instruction commenced and answered specific questions concerning his expectations and aspirations.

The mid-year testing program, completed in January, included the *Listening Comprehension* and *Reading* portions of the *MLA Cooperative Foreign Language Tests*, a second administration of the *Student Opinion Scale* and the administration to all students of the *Listening Discrimination Test* for French and German especially developed for the experiment by Dr. Rebecca Valette of Boston College. In addition, a randomly selected ten percent sample of the entire student population was administered the *Speaking* portion of the *MLA Cooperative Language Test*.

The final testing was done in May and included a re-testing of the students on the *French Cooperative Test* and the *German Cooperative Test* as well as the *Listening Comprehension* and *Reading* portions of the *MLA Cooperative Foreign Language Tests*. The same ten percent sample of students again completed the *Speaking* portion and for the first time the *Writing* section of the *MLA Tests*. A third administration of the *Student Opinion Scale* was completed for all students.

CALIFORNIA TEST OF MENTAL MATURITY

The *California Short Form Test of Mental Maturity* is a one period adaption of the longer parent instrument. It is widely used in American education and is consistently updated to reflect cultural changes. The 1963 revision of the test, Level 3 (Junior High) and Level 4 (Secondary) provided the experiment with two measures of intelligence, verbal and non-verbal. Scores for these two portions are combined to give a total value of the intelligence quotient.

MODERN LANGUAGE APTITUDE TEST (SHORT FORM)

The Modern Language Aptitude Test was developed by John B. Carroll and Stanley M. Sapon to provide an indication of an individual's probable degree of success in learning a foreign language. The authors maintain that it is particularly useful in predicting success in learning to speak and understand a foreign language as well as providing an indication of probable success in the graphic skills. It was developed for English speaking persons and has been applied successfully to students in grade 9 and above. Project students completed the Short Form of the test which included three parts of the complete aptitude battery. These portions are based upon Spelling Clues, Words in Sentences, and Paired Associates. These scores are combined to provide a total number score which is used to predict success in foreign language study.

The Modern Language Aptitude Test is a fully standardized instrument published by the Psychological Corporation of New York and has been available to the profession since 1959. The 1964 printing of the test was utilized in the experiment.

THE COOPERATIVE TESTS

Since one of the main purposes of the experiment was to measure the relative effectiveness of the "traditional" and "functional skills" approaches to modern foreign language learning, it was deemed desirable to include both older and newer foreign language achievement tests in order to adequately assess both approaches. The differing objectives of both methods of instruction are clearly reflected in the types of instruments used to evaluate each. Therefore, students were administered the Cooperative Tests for French and German which were developed to measure the objectives of the "traditional" method. Since these tests are no longer available they were reprinted especially for the Project by the Educational Testing Service. The tests measure the ability of a student to read a foreign language, his vocabulary, and his knowledge of the grammar of the foreign language. The Cooperative French Test, 1941 edition, and the Cooperative German Test, 1939 edition, were administered as pre-experimental and post-experimental measures to all students in the Project.

MLA COOPERATIVE FOREIGN LANGUAGE TESTS

The Cooperative Foreign Language Tests were developed under the direction of the Modern Language Association and are published by the Educational Testing Service. They are available in two levels and in two forms. Alternating forms of the beginning, "L", level were used throughout the experiment. These tests reflect current concepts and instructional objectives of modern foreign language instruction. The Listening portion of the test which was administered as a pre-, a mid-, and a post-experimental measure is contained on a tape recording. The Reading and Writing portions of the test can be completed by the student in a test booklet while the Speaking portion must be individually administered and recorded on tape.

The evaluation of the Speaking Test is a rigorous and possibly subjective process. In order to insure that this test was evaluated accurately, the Project Field Consultants were especially trained by the Educational Testing Service to score the Speaking Test. A training session was provided for them at the ETS Center in Princeton, New Jersey, and consultants from the Educational Testing Service visited Project headquarters at West Chester State College in a follow-up training session. At the conclusion of these two training periods the Field Consultants were considered to be adequately trained in the objective scoring of the Speaking Test.

STUDENT OPINION SCALE

A student attitude inventory was developed for the Project by Dr. Milton C. Woodlen and Mr. Emanuel Berger. The scale consists of student reactions to a single question concerning foreign language instruction and permits a choice among eighteen descriptive polar adjectives. It is reproduced in Appendix A. The second portion of the attitude inventory was changed at various times throughout the experiment in order to assess various aspects of the student's self concept and aspiration. The first administration included a fourteen item inventory of self-rating concerning foreign languages. The student was also asked to predict how long he thought he would study a foreign language and what foreign language skills he considered of importance to himself as an individual. Later administrations included the semantic differential scale with varying student questionnaires. The Student Opinion Scale was administered three times during the year.

LISTENING DISCRIMINATION TEST

The Project Staff and consultants were concerned that none of the tests available were designed specifically to measure the exact ability of a student to discriminate between the sounds of a foreign language. The Listening portion of the MLA Tests are a measure of the student's ability to comprehend the language in life-like situations. It was thought desirable to be able to measure the student's exact ability to discriminate among the phonemes of a foreign language. Under a separate contract with the Department of Public Instruction, Dr. Rebecca Valette, Director of the Language Laboratory of Boston College and an authority on foreign language testing, developed Listening Discrimination Tests for French and German.

These tests are designed to measure every important sound in the language and consist of four parts: discrimination between very similar sounds in both English and French or German, the ability to identify the same or different sounds in the target language, the ability to identify the same and different vowel sounds in French or German, and the ability to discriminate rhymes in French and German. These four portions are combined to provide a total score which is considered to be indicative of the student's ability to closely discriminate among the sounds of spoken French and German. The tests were produced by Dr. Valette and recorded by native speakers for administration to the Project population. All students took the Listening Discrimination Test in January. Since this was the only administration of this test it was considered a "final" measurement.

After the close of the instructional period an extensive psychometric analysis of the Listening Discrimination Tests was made at the Pennsylvania State University (Williams, 1967). The "Summary and Conclusions" portion of this report observes in part:

> The psychometric characteristics of the FLDT and the GLDT were almost identical. The relationship of many of the items in the two tests to the total-test performance is quite low. This leaves open the question of whether the measurement of different linguistic areas in the FLDT and GLDT was actually accomplished in general...
>
> ...In general, the fact that some of the items show outstanding discrimination indices, makes the examination look quite promising. However, an investigation of the validity of the test by some external criterion would seem necessary...

Due to this evaluation - while providing useful and meaningful insights - the Listening Discrimination Test was not used as a final measure or a covariate in the final statistical analysis of data relating to primary objectives.

TEACHER ADHERENCE TO ASSIGNED STRATEGIES

A study was undertaken to determine the extent to which teachers assigned to Functional Skills (FSM), Functional-Skills + Grammar (FSG), and Traditional (TLM) strategies adhered to their particular assignment during the year of experimental instruction. For this purpose the Field Consultants' Observation Reports were examined.

Field Consultants rated the teachers' adherence or non-adherence to assigned strategies according to the following criteria:

1. excellent
2. good
3. fair
4. poor
5. very poor
0. not observed

The following tables illustrate per item totals the Observers assigned to the FSM, FSG, and TLM groups as well as the Means of these ratings.

An examination of the tables reveals a rather close adherence to the assigned teaching strategy. The "over-all" rating index of the traditional classes is somewhat higher than the functional skills groups largely due to the heavy percentage of "non-adherence" marks for items 7 and 9. Item 7 prescribed the writing of short free compositions by the students. Traditional teachers did not utilize this teaching device in Level I as much as had been expected, perhaps correctly so. Item 9, use of the classroom tape recorder, would have been better stated negatively since the traditional classes were not to use a tape recorder except for occassional "cultural" presentations. Specific frequent use of the tape recorder for drill work was forbidden. Therefore, non-observation of the tape recorder in use was a closer adherence to the intent of the research than if it had been observed often.

TABLE 2

ADHERENCE TO ASSIGNED TEACHING STRATEGIES - TLM

Rating Scale	Ratings					Item Mean	No. not Observed	% not Observed
	1	2	3	4	5			
1. Vocabluary drill	16	10	4	2	0	1.75	16	.33
2. Translation of reading lesson	14	12	1	2	0	1.69	19	.40
3. Grammar--formal analysis	28	10	2	0	1	1.44	7	.15
4. Pronunciation--teacher	11	16	10	3	1	2.20	7	.15
5. Pronunciation--student	7	11	14	5	5	2.76	6	.12
6. Reading for total comprehension	12	4	8	2	0	2.00	22	.46
7. Writing--free composition	2	0	1	5	7	4.00	33	.69
8. Culture (refinement)	10	6	7	2	1	2.15	22	.46
9. Use of tape recorder	3	2	5	2	5	3.24	31	.65
10. Use of visual aids	9	8	4	1	5	2.44	21	.44

Observations N = 48

Overall Rating = 2.37

TABLE 3

ADHERENCE TO ASSIGNED TEACHING STRAGEGIES - FSM

Rating Scale	Ratings 1	2	3	4	5	Item Mean	No. not Observed	% not Observed
1. Teacher speaks foreign language	65	27	8	2	1	1.51	1	.01
2. Students speak foreign language	26	55	14	7	0	2.02	2	.02
3. Grammar: Subsidiary to functional skills	69	16	7	4	0	1.44	8	.08
4. Speaking only what was listened to	79	18	6	1	0	1.32	0	.00
5. Reading as direct communication	36	9	3	2	0	1.42	54	.52
6. Reading only what was listened to and spoken	49	11	2	2	0	1.33	40	.38
7. Writing only what was listened to, spoken and read	55	12	3	1	0	1.30	33	.32
8. Language as a cultural behavior pattern	65	15	5	2	0	1.36	17	.16
9. Testing as demonstration of functional proficiency	42	9	5	1	0	1.40	47	.45
10. Average use of tapes--ten minutes per day	37	13	6	4	4	1.83	40	.38
11. Average pronunciation drill--3-5 minutes per day	26	27	9	3	0	1.83	39	.37
12. Vocabulary taught in context only	76	13	6	2	1	1.36	6	.06

Observation N = 104

Overall Rating = 1.51

TABLE 4

ADHERENCE TO ASSIGNED TEACHING STRATEGIES - FSG

	Ratings							
Rating Scale	1	2	3	4	5	Item Mean	No. not Observed	% not Observed
1. Teacher speaks foreign language	78	31	6	1	0	1.40	0	.00
2. Students speak foreign language	33	55	18	8	0	2.10	2	.02
3. Grammar: Descriptive; use before rules	69	18	4	1	1	1.35	23	.20
4. Speaking only what was listened to	88	17	4	2	1	1.31	4	.03
5. Reading as direct communication	43	7	3	1	0	1.30	62	.53
6. Reading only what was listened to and spoken	55	8	3	1	0	1.25	49	.42
7. Writing only what was listened to, spoken and read	57	6	2	0	1	1.21	50	.43
8. Language as a cultural behavior pattern	78	18	4	0	0	1.26	16	.14
9. Testing as demonstration of functional proficiency	62	5	3	0	0	1.16	46	.40
10. Average use of tapes--ten minutes per day	56	10	4	3	2	1.47	41	.35
11. Average pronunciation drill--3-5 minutes per day	43	15	10	1	2	1.65	45	.39
12. Vocabulary taught in context only	91	8	1	2	2	1.23	12	.10

Observations N = 116

Overall Rating = 1.38

SUMMARY OF THE INSTRUCTIONAL PHASE

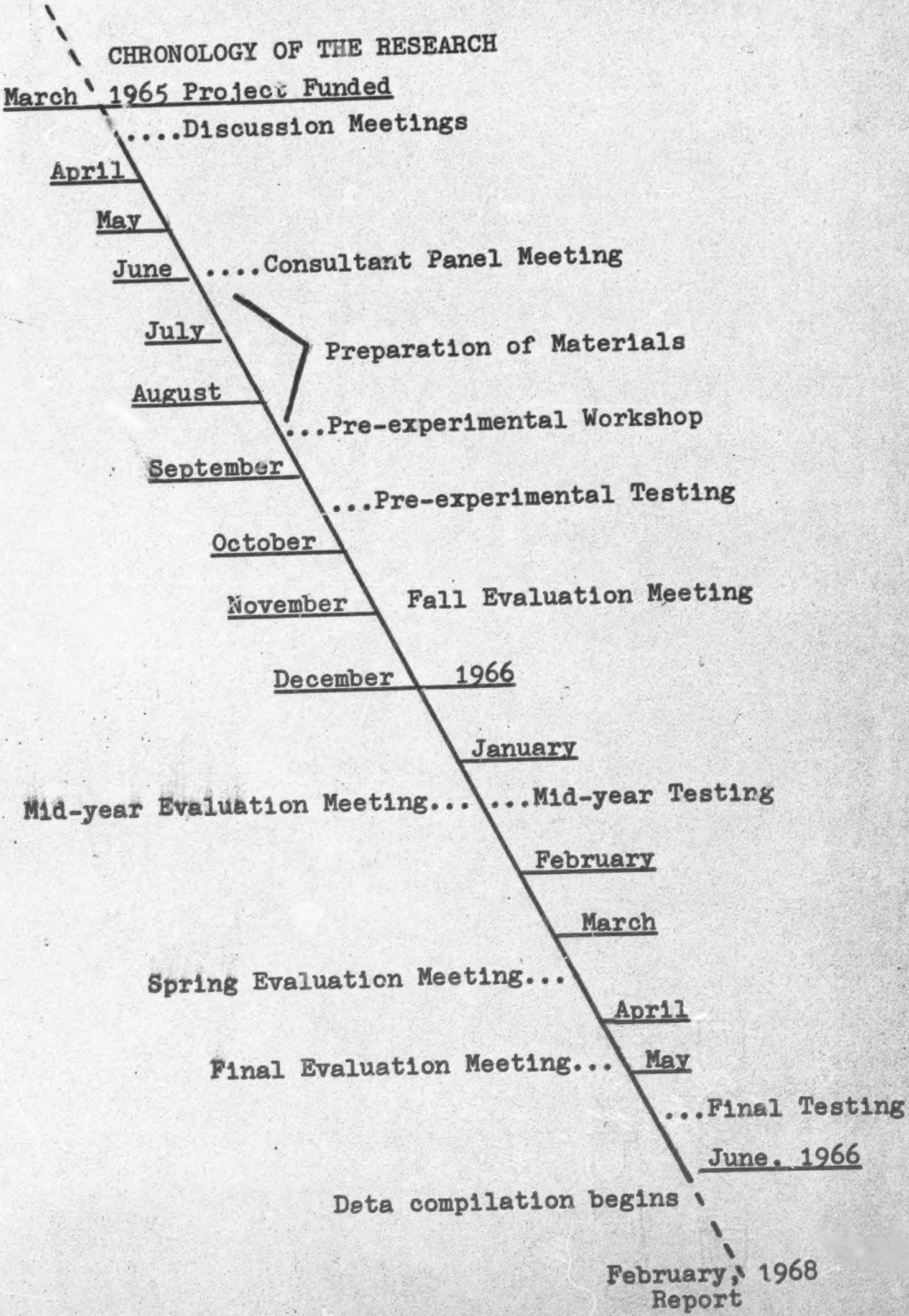
All students in the experimental population completed pre-, mid-year and final testing on a number of skills. Measures of both intelligence, aptitude and achievement were obtained before instruction in the foreign language commenced. Mid-year measures were obtained on the Listening and Reading skills as well as on the exact ability of the student to discriminate among the important sounds of the foreign language. Final testing included not only the Listening and Reading skills but a measure of Vocabulary and Grammar for all students. A ten percent random sample of all students was tested in the Speaking and Writing skills. Identical student attitude inventories were given before, during and at the completion of the first year of foreign language instruction in order to assess student attitude shifts and to relate these to the method of instruction.

Any student who did not complete every single measure was automatically dropped from the experimental population. This resulted in an attrition from approximately 3,500 to a final 2,171 students.

Teachers generally stayed within the assigned teaching strategies as assessed by the Field Consultants during periodic unannounced observations. FSM and FSG teachers as a group were rated between "good" and "excellent" in this respect while TLM teachers as a group were rated between "fair" and "good." Every effort was made to maintain adherence and yet fairly represent the "real school" environment.

FIGURE 4

CHRONOLOGY OF THE RESEARCH


March 1965 Project Funded
....Discussion Meetings
April
May
June ....Consultant Panel Meeting
July
Preparation of Materials
August
...Pre-experimental Workshop
September
...Pre-experimental Testing
October
November Fall Evaluation Meeting
December 1966
January
Mid-year Evaluation Meeting... ...Mid-year Testing
February
March
Spring Evaluation Meeting...
April
Final Evaluation Meeting... May
...Final Testing
June, 1966
Data compilation begins
February, 1968
Report

PART III - DATA ANALYSES

The central focus of the research project was from its inception, (1) the comparative effectiveness of the three teaching strategies and (2) the comparative effectiveness of the three language laboratory systems. From this analysis it was hoped that (3) a determination might be made of the optimum strategy-system combination. The Project retained Dr. Chauncy M. Dayton, a specialist in educational research and statistical analysis on the faculty of the University of Maryland, to oversee the task. The analysis was made at the Computer Science Center of the University of Maryland.

THE STATISTICAL PROGRAM

The statistical program utilized by Dr. Dayton was the Multivariate Analysis of Variance ("MANOVA") developed by the Biometric Laboratory of the University of Miami. Readers desiring a complete description of the program should refer to Multivariate Statistical Programs by D. J. Clyde, E. M. Cramer and R. J. Sherin, published by the Biometric Laboratory in 1966, pp. 20-41.

In essence the Multivariate Analysis of Variance program performs analyses of variance, covariance and of regression, providing exact solutions in either orthogonal or non-orthogonal cases. Reanalyses may be done with varying criteria, covariates, contrasts and ordering.

Computer output on each strategy - laboratory system analyzed included (1) means and standard deviations on all twenty-five pre-, mid- and post-measures; (2) the within cells correlations on each measure; (3) a test for linear dependency among the variables; (4) estimates of error effects (5) an analysis of variance using Wilk's Lambda Criterion and Canonical Correlations with Rao's approximate F-test; and (6) analysis of covariance with either one or two covariates.

In the subsequent portions of the report, only data judged essential to interpretation by the reader is reproduced. The complete computer output totals several large volumes. Probabilities of occurrence are reported for all F-ratios. Since the program is two-dimensional, sex was always used as a second factor. This permitted a view of the role of sex as an active factor in second language learning. It was significant on many measures.

The reanalysis of data by several schematics and contrasts also results in the variation among the number of classes reported on various tables since each analysis sometimes eliminated groups from cells due to insufficient data. As cells were recoded, numbers of classes changed to reflect deletions or additions.

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In some cases data presented in tabular form may seem to overlap. This again results from the reporting of what seems to be pertinent from several analyses. Many tables illustrated do not show statistical differences. This, per se, is significant and is the very reason such tables were reported. In many cases a difference was pre-supposed but did not occur.

The basic unit of the analysis is the teacher (class) mean. Two observations are reported for each class included in the analysis - male and female - except in a few cases where the experimental students within a class were of the same sex.

Student and teacher data were rigorously checked before submission to the statistical analysis. Preliminary screening had eliminated incomplete observations on students. The computer program automatically reported any observations with insufficient data and deleted them from the computations. Students repeating the first year of language study were dropped from the study.

Proper strategy assignment was rechecked for coding errors. As late as July, 1967, a year and a half after administration, errors were found in the scoring key for the German Listening Discrimination Test. This was rectified, the test was rescored and data cards repunched before submission to statistical analysis. Other test scoring was immediately checked and verified to be correct.

Since the data was examined several times by the Multivariate Analysis of Variance Program to examine various facets, computer outputs changed slightly for each analysis. For this reason the most representative examination, one which included the entire student population, was chosen for the reporting of "Means and Standard Deviations" rather than several reproductions of essentially identical data.

RANDOM ASSIGNMENT TO TREATMENT

In order to carefully study the differences between audio-active laboratory and audio-record laboratory classes it was first considered essential to examine the reality of the "random" assignment of classes. As mentioned in previous sections of the report, lack of recording facilities excluded some classes from being truly "randomly" assigned to a laboratory system. Only classes with recording facilities had the option to record or not to record.

Nineteen entire classes, thirteen French and six German, were randomly assigned to strategy (FSG or FSM) but not to system (AA or AR). All had to be assigned to the audio-active strategy because there lacked recording facilities as shown:

FIGURE 5

RANDOM ASSIGNMENT OF CLASSES

Audio-Active Laboratory		Audio-Record Laboratory	
non-random assignment	true random assignment		
		part of class recorded	full class recorded
French 5 German 4	French 7 German 5	French 4 German 3	French 4 German 1
French 8 German 2	French 9 German 8	French 4 German 2	French 3 German 3

To compare the audio-active and the audio-record classes, the first question to be resolved was whether to include the "non-random AA" classes with the "random" AA classes. The availability of a laboratory recording facility was a factor independent of the study. Accordingly, a comparison was made between the two audio-active groups based upon pre-experimental measures. The data, shown in Table 5, reveals some significant initial differences. Therefore, in subsequent direct comparisons of AA versus AR classes the "non-random" groups were deleted. For strategy comparisons, FSG versus FSM, the "non-random" AA classes were included since these teaching strategies were randomly assigned.

ANALYSES OF SECONDARY OBJECTIVES

The secondary objectives (see pp. 10-11, Objectives 4 - 10) of the research were evaluated at the Cooperative Research Center, West Chester State College by the Project Coordinator. Facilities included an IBM 1620 Computer system and a competent staff. Programs utilized were largely of the standard IBM type. A few were especially written for the Project by Dr. Martin J. Higgins and Mr. Wesley Fasnacht of West Chester State College and Mr. Russell Dusewicz of the State Department of Public Instruction.

TABLE 5

COMPARISON OF NON-RANDOM AND RANDOM AUDIO-ACTIVE GROUPS

Univariate F-Tests

Pre-experimental Measures	FRENCH		GERMAN	
	F-ratio	Probability	F-ratio	Probability
1. Language I.Q.	6.93	.01**	.611	.44
2. Non-Language I.Q.	11.11	.002**	.03	.86
3. Total I.Q.	10.95	.002**	.36	.55
4. MLAT, Spelling	.02	.88	.48	.49
5. MLAT, Words	3.25	.08	2.45	.13
6. MLAT, Prd. Asoc.	1.83	.18	1.24	.28
7. MLAT, Total	2.18	.15	2.24	.15
8. Coop. Ach. Read.	.66	.42	4.64	.04*
9. Coop. Ach. Vocab.	.01	.92	23.65	.001**
10. Coop. Ach. Grammar	.04	.85	13.14	.001**
11. Coop. Ach. Total	.02	.89	16.93	.001**
12. LA, Listening	.27	.60	3.68	.07

TABLE 6

STUDENT MEASURES

1st year - 2,171 students

Pre-experimental Measures: September, 1965

California Test of Mental Maturity
1. Language I.W.
2. Non-language I.Q.
3. Total I.Q.

Modern Language Aptitude Test - Short Form
4. Part 3 Spelling Clues
5. Part 4 Words in Sentences
6. Part 5 Paired Associates
7. Total Aptitude

8. MLA Cooperative Classroom Test, Form LA, Listening

Cooperative French/German Tests
9. Part 1 Reading
10. Part 2 Vocabulary
11. Part 3 Grammar
12. Total Cooperative

13. Student Opinion Scale

Mid-Year Measures: January, 1966

14. MLA Cooperative Classroom Tests, Form LB, Listening

15. MLA Cooperative Classroom Tests, Form LB, Reading

Valette Listening Discrimination Test
16. Part 1 French/German vs English
17. Part 2 Word Similarity
18. Part 3 Vowel Similarity
19. Part 4 Rhymes
20. Total Listening Discrimination

21. MLA Cooperative Classroom Tests, Form LB, Speaking

22. MLA Cooperative Classroom Tests, Form LB, Writing

23. Student Opinion Scale

Final Measures: May, 1966

24. MLA Cooperative Classroom Tests, Form LA, Listening

25. MLA Cooperative Classroom Tests, Form LA, Reading

Cooperative French/German Tests
26. Part 1 Reading
27. Part 2 Vocabulary
28. Part 3 Grammar
29. Total Cooperative

30. MLA Cooperative Classroom Tests, Form LA, Speaking, (10% sample)

31. MLA Cooperative Classroom Tests, Form LA, Writing, (10% sample)

32. Student Opinion Scale

ANALYSIS OF VARIANCE AND TUKEY MULTIPLE RANGE TESTS

Objectives 6 and 7 of the study dealing with the comparison of student attitude indices, attitude shifts, and the relationship of various student and instructional measures to final achievement were first tested for significance with a one-way analysis of variance. This particular procedure was selected since the unit of analysis was the individual student and there was considerable disproportionality on unequal numbers of students per treatment. If significant differences within the population were indicated by the analysis of variance, the conservative Tukey "A" test was employed to compare differences between pairs of means.

Since there is some apprehension among statisticians as to the increasing likelihood of obtaining significant differences among groups by computing large numbers of t or Critical Range tests, the more conservative Tukey "A" multiple range test was employed. This test requires the ordering of group means and computation with a harmonic number of subjects. Considerable confidence can thus be attached to significance reported using this test.

The reader should be aware that in some of the tables reported in Appendix E regarding the relationship of groups of students by ability to final achievement, the large disproportionality among numbers of students within each group considerably reduced the value of the harmonic n in computing the Tukey "A" test.

CORRELATIONS AND MULTIPLE REGRESSION

To establish the relationship between such variables as age, grade, teacher proficiency, student attitude, intelligence and aptitude with student achievement in foreign language the correlation coefficent (r) was employed. It was also used to determine the interrelationships among the various foreign language skills and among all discrete experimental measures.

The computation was done by a standard IBM 40 x 40 correlation program on an IBM 1620 computer. Levels of significance for correlation coefficients, two tailed test, are identified where applicable from a standard table of "Critical Values of the Correlation Coefficient" (after Fisher and Yates) at N-2 degrees of freedom.

Multiple correlation coefficients (R) also were computed to determine the best predictors of foreign language achievement. Significance of reported multiple correlation coefficients was determined by computation of an F-ratio using the formula:

$$F = \left(\frac{R^2}{1-R^2}\right)\left(\frac{N-K-1}{K}\right)$$

where N is the number of observations and K is the number of predictors.

SECTION III - RESULTS OF THE RESEARCH

PART I: TEACHING STRATEGIES AND LANGUAGE LABORATORY SYSTEMS

The primary objectives of the research study were (1) to determine which of the three foreign language teaching strategies is most effective; (2) to determine which of three language laboratory systems is best suited, economically and instructionally; and (3) to determine by interaction effects the optimum combination of "strategy" and "system."

It must be stressed again that this is a preliminary report of the experiment, limited to the findings of one year of French and German instruction. The forthcoming final report for Project 7-0133 will permit a more extensive evaluation over a full two- and, in some cases, a three-year period with a replication of this first year study. Before studying the statistical data presented shortly, the reader should review the definitions of each strategy-system in the experiment, particularly the "general criteria" on pages 18 through 26. An attempt was made to have every strategy represented in its "best" form with the use of the foreign language predominant even in "traditional" classes.

GROUP MEANS AND STANDARD DEVIATIONS

The means and standard deviations on the post-experimental measures for the various groups contrasted in the multivariate analyses are shown in Tables 7 through 8. These groups were separated initially by class, strategy, system and sex. The "Group Mean" reported is a mean of means of the classes within the particular group cell. Means and standard deviations on pre-experimental and mid-year measures and within cells correlations are contained in Tables 63 through 70, Appendix D.

An examination of the post-experimental means and standard deviations shows that traditional groups equaled or exceeded the achievement of classes in other strategies on most measures. Tables illustrating the direct contrasts among the various strategies, systems and groups are contained both in succeeding pages and in Appendix D. (A key to abbreviations used was given on page 13.)

TABLE 7

FRENCH: POST-EXPERIMENTAL

MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	LA-L	LA-R	Coop. R	Coop. V	Coop. G	Coop. T
1. TLM-M	13.53	15.42	12.60	20.66	13.90	47.15
N 10	1.87	3.46	2.56	3.59	3.56	8.44
2. TLM-F	14.39	18.15	15.91	24.36	16.80	57.08
N 9	2.10	3.37	2.53	3.04	2.67	7.55
3. FSG-TR-M	16.77	18.41	12.86	18.21	12.71	43.79
N 3	9.52	9.38	8.99	5.65	5.03	10.44
4. FSG-TR-F	15.91	17.37	11.50	18.43	11.75	41.67
N 3	6.88	3.51	5.30	1.46	3.25	9.66
5. FSG-AA-M	13.91	13.79	9.42	16.74	10.68	36.84
N 7	3.70	2.71	2.27	4.90	2.53	8.61
6. FSG-AA-F	13.74	14.95	9.91	18.30	11.79	40.00
N 7	2.60	1.50	1.92	3.28	2.17	6.64
7. FSG-AR-M	15.17	15.19	10.72	19.12	12.17	42.01
N 4	3.55	3.54	1.59	4.23	2.33	7.65
8. FSG-AR-F	14.02	15.62	11.26	19.92	10.79	41.98
N 11	2.23	3.08	3.59	2.09	3.90	9.08
9. FSM-TR-M	15.17	15.19	10.72	19.12	12.17	42.01
N 3	3.55	3.54	1.59	4.23	2.33	7.65
10. FSM-TR-F	14.02	15.62	11.26	19.92	10.79	41.98
N 2	2.23	3.08	3.59	2.09	3.40	9.08
11. FSM-AA-M	13.89	14.61	8.85	16.55	9.18	34.59
N 9	1.60	1.87	1.30	1.91	1.50	3.33
12. FSM-AA-F	14.82	15.86	11.60	19.12	10.99	41.72
N 9	2.57	2.53	2.93	3.09	1.90	7.37
13. FSM-AR-M	14.28	15.94	10.64	18.82	11.51	40.97
N 11	5.81	5.16	4.49	5.90	4.18	14.29
14. FSM-AR-F	14.63	16.20	12.16	20.06	12.38	44.60
N 11	3.15	2.28	3.43	3.76	3.27	9.43

TABLE 8

GERMAN: POST-EXPERIMENTAL

MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	LA-L	LA-R	Coop. R	Coop. V	Coop. G	Coop. T
1. TLM-M	16.65	17.02	24.24	22.20	17.19	63.63
N 6	2.39	2.02	3.47	4.74	3.10	10.60
2. TLM-F	16.34	16.79	26.49	22.52	17.90	66.90
N 6	1.59	3.35	1.77	4.21	3.63	8.51
3. FSG-TR-M	13.66	14.33	14.93	14.99	11.67	41.59
N 5	1.88	1.70	3.79	2.34	4.17	9.50
4. FSG-TR-F	15.10	15.01	16.33	15.94	13.18	45.45
N 4	2.98	3.13	4.99	3.62	6.92	15.16
5. FSG-AA-M	13.70	14.09	13.40	14.38	11.95	39.73
N 4	0.85	0.61	2.97	1.71	1.93	6.23
6. FSG-AA-F	16.37	16.22	17.26	17.15	14.67	49.08
N 4	2.76	1.75	3.93	2.97	2.08	8.42
7. FSG-AR-M	15.63	15.09	14.94	14.23	12.20	41.37
N 7	3.07	3.11	3.94	2.17	2.74	8.58
8. FSG-AR-F	15.42	14.94	16.01	15.76	12.52	44.29
N 7	3.06	1.11	3.30	3.17	2.83	6.95
9. FSM-TR-M	15.49	15.04	14.65	14.87	11.68	41.20
N 4	4.75	2.20	5.64	2.86	1.77	10.01
10. FSM-TR-F	16.43	16.45	16.40	16.25	13.53	46.19
N 4	3.58	3.57	5.74	3.21	2.87	11.33
11. FSM-AA-M	13.71	14.03	13.84	14.89	10.98	39.70
N 7	2.15	2.04	2.25	1.35	1.29	2.71
12. FSM-AA-F	16.46	15.54	16.99	15.92	13.83	46.74
N 8	2.23	1.77	4.09	1.65	2.13	7.39
13. FSM-AR-M	16.03	13.83	14.23	14.43	12.16	40.81
N 8	3.83	2.23	5.04	2.42	1.47	7.78
14. FSM-AR-F	17.07	15.90	17.29	16.52	13.66	47.47
N 7	4.38	4.97	5.63	2.90	2.83	9.12

Overall, Traditional (TLM) classes equalled both Functional Skills (FSM and FSG) strategies on the *LA Listening* and *Reading Tests* and significantly exceeded them on the 1939/1941 *Cooperative French/German Tests*. This is illustrated in Table 9, p. 58.

Tables 71 through 74 in Appendix D show that many significant differences did exist between TLM and FSG or FSM but little difference between FSG and FSM on six measures of achievement. Sex shows up as a significant factor on Table 10, p. 58, where females achieved better than males on four of the six criteria.

The laboratory systems are contrasted on Table 11, p. 59, which indicates no differences in achievement between the "control" tape recorder group and the language laboratory systems or between the two types (AA and AR) of laboratories. Table 12, p. 60, shows no significant interaction between strategy and laboratory system for either language.

Analyses of covariance indicate few significant differences in either language by strategy, system, or sex on the *MLA Cooperative Classroom Listening Test* (Tables 12, p. 60, and 78 and 79, in Appendix D). On the *Reading Test* FSM lead FSG at mid-year (Table 80). By the end of the instructional year significant differences occurred in French with TLM classes achieving more than FSM which was also exceeded by FSG classes. Females also did better than males (Tables 13 and 80 through 84, Appendix D).

On the *Cooperative Reading Test* the same trend is obvious. Significant differences occurred with TLM > FSG and FSM and F > M (Table 85). On the *Cooperative Vocabulary Test* traditional (TLM) did significantly better than FSG which in turn exceeded FSM. Sex again shows up as a significant factor (Tables 86 and 87, Appendix D).

Functional Skills + Grammar (FSG) classes did not achieve significantly higher than Functional Skills Method (FSM) classes on the *Cooperative Grammar Test* despite the deliberate instruction in grammar. As might be expected, TLM classes scored significantly better on this traditional achievement measure (Tables 88 and 89, Appendix D).

The analysis of covariance for the total 1939/1941 *Cooperative French/German Tests* reflects the significance shown in its sub-parts: TLM > FSG and FSM and FSG > FSM on some measures. Sex differences exist in favor of females (Tables 13 p. 61, 14 p. 62 and 90, Appendix D).

TABLE 9

ANALYSIS OF VARIANCE

TRADITIONAL vs FUNCTIONAL SKILLS STRATEGIES

FINAL TEST	FRENCH (55 Classes)		GERMAN (35 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.476	.492	1.321	.255
2. LA Reading	1.978	.163	5.016	.028
3. Coop. Reading	16.741	.001** TLM > FS	57.199	.001** TLM > FS
4. Coop. Vocabulary	17.943	.001** TLM > FS	57.749	.001** TLM > FS
5. Coop. Grammar	24.747	.001** TLM > FS	27.596	.001** TLM > FS
6. Coop. Total	25.016	.001** TLM > FS	62.643	.001** TLM > FS

TABLE 10

ANALYSIS OF VARIANCE BY STRATEGY-SYSTEM

SEX: ALL STRATEGIES, MALE vs FEMALE

FINAL TEST	FRENCH (53 Classes)		GERMAN (38 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.209	.649	2.950	.090
2. LA Reading	2.496	.118	2.991	.088
3. Coop. Reading	5.952	.017** F > M	6.657	.012** F > M
4. Coop. Vocabulary	7.683	.007** F > M	4.756	.033** F > M
5. Coop. Grammar	5.387	.022** F > M	5.845	.018** F > M
6. Coop. Total	7.775	.006** F > M	7.701	.007** F > M

TABLE 11

ANALYSIS OF VARIANCE BY STRATEGY-SYSTEM

TAPE RECORDER vs AUDIO-ACTIVE vs AUDIO-RECORD LABORATORIES

Final Test	FRENCH (55 Classes)			GERMAN (34 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. LA Listening	.579	.563		.819	.445
2. LA Reading	2.023	._38		.130	.879
3. Coop. Reading	2.499	.088		.191	.826
4. Coop. Vocabulary	1.784	.174		.518	.598
5. Coop. Grammar	4.098	.020*	TR > AA,AR	.086	.918
6. Coop. Total	2.968	.056		.265	.768

TABLE 12

ANALYSIS OF COVARIANCE BY STRATEGY-SYSTEM

Criterion : Final LA Listening Test

Covariate : Pre-Exper. LA Listening Test

CONTRAST	FRENCH (53 Classes)		GERMAN (38 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. TLM vs FSG	.221	.639	2.408	.125
2. TLM vs FSM	.034	.854	1.578	.213
3. AA vs AR	.079	.939	.591	.445
4. FSG vs FSM	.343	.559	1.174	.283
5. AA/AR vs FSG/FSM	.026	.873	.027	.869
6. Sex	.207	.650	1.317	.255

REANALYSIS	FRENCH (55 Classes)		GERMAN (35 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
7. FSG vs FSM	.057	.812	1.969	.165
8. TR vs AA vs AR	.579	.563	1.396	.255
9. Interaction FSG, FSM/TR, AA, AR	.444	.643	.758	.473
10. TLM vs FSG+FSM	.468	.496	4.477	.038* TLM >FSG+FSM

Note: The data was analyzed several times within different schematics and with a reordering of effects. Reordering of data caused attrition within cells and at times effected levels of probability.

TABLE 13

ANALYSIS OF COVARIANCE BY STRATEGY-SYSTEM

Criterion : Final LA Reading Test
Covariate : Mid-Year LB Reading Test

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. TLM vs FSG	1.000	.320		.739	.393
2. TLM vs FSM	3.930	.050*	TLM > FSM	.412	.523
3. AA vs AR	.168	.683		.167	.689
4. FSG vs FSM	.945	.334		.290	.592
5. AA/AR vs FSG/FSM	.845	.360		.005	.942
6. SEX	.804	.372		2.185	.144

TABLE 14

ANALYSIS OF COVARIANCE BY STRATEGY-SYSTEM

Criterion : Final Cooperative Test, Total
Covariate : Pre-Exper. Cooperative Test, Total

CONTRAST	FRENCH (53 Classes)			GERMAN (35 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. FSG vs FSM	.0569	.453		.000	.994	
2. TR vs AA vs AR	5.968	.004**	TR > AR > AA	.241	.786	
3. Intractn FSG-FSM/TR-AA-AR	1.808	.170		.554	.577	
4. TLM vs FSG+FSM	23.035	.001**	TLM>FSG+FSM	74.069	.001**	TLM>FSG+FSM
5. Reanalysis FSG vs FSM	5.708	.019*	FSG > FSM	.535	.467	

REANALYSIS	FRENCH (32 Classes)			GERMAN (23 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
6. FSG vs FSM	5.787	.018*	FSG > FSM	.563	.456	
7. Sex	3.497	.064		7.801	.007	F > M
8. Interaction SEX/FSG/FSM	.046	.830		.333	.566	

Note: The data was analyzed several times within different schematics and with a reordering of effects. Reordering of data caused attrition within cells and at times effected levels of probability.

SPEAKING AND WRITING SAMPLE

A ten percent sample of the experimental population completed the more lengthy MLA Cooperative Classroom Speaking and Writing Tests. These students were chosen from a random numbers table and tested twice, at mid-year and at the end-of-the-year. Two hundred five French students and one hundred and thirty-eight German students represented forty-two and thirty-three classes. These four to five (mean 4.53) students from each class represented both recording and non-recording laboratory students.

Means, standard deviations and tests of significance are reported in subsequent tables and in Appendix D. While the program output was considerably more detailed, including an analysis of all the sub-parts of both tests, only totals are reported due to the lack of significant findings, *per se* significant.

Analyses of variance and covariance show that either language laboratory systems, as employed, had no significant effect on achievement on the Speaking Test scores, Tables 17 and 18. An analysis of the sub-parts of the Speaking Test indicated that in the "control" and "classroom tape recorder only" classes the Traditional did as well as both Functional Skills strategies on all parts and significantly better in French on the "Critical Sounds" sub-test (Tables 91 and 92, Appendix D).

Among the randomly assigned classes--classes in which there was a pre-experimental option to record or not to record--the type of laboratory employed had no discernable effect on any portion of the MLA Cooperative Classroom Speaking Test (Table 19).

Table 20 shows the effect of strategy on the achievement of classes in the Writing Test sample. Traditional classes did significantly better than Functional Skill strategies classes but only in French. German classes show no significant differences.

The data on the ten percent random sample of students who were given the Speaking and Writing portions of the MLA Cooperative Classroom Tests shows a wide range as evidenced by the large standard deviations. It should be remembered that these measures were taken on identical students, not two random samplings. A direct comparison of the three laboratory systems among pure randomly assigned classes indicated no significance on any portion of the Speaking Test.

TABLE 15

SPEAKING AND WRITING MEASURES

FRENCH

Ten Percent Random Sample of Randomly Assigned Classes

MEANS AND STANDARD DEVIATIONS

N=Number of Classes Sampled

Group	Mid-Year Speaking	Final Speaking	Final Writing
1. TLM-M	20.133	27.667	25.067
N 5	9.794	13.762	18.295
2. TLM-F	23.083	34.817	39.925
N 10	9.076	10.913	15.881
3. FSG-TR-M	22.500	20.667	24.500
N 3	12.319	8.083	29.677
4. FSG-TR-F	19.000	24.167	23.333
N 3	3.122	6.658	14.969
5. FSG-AA-M	17.389	23.264	17.847
N 6	8.614	10.362	15.380
6. FSG-AA-F	14.150	19.100	17.917
N 5	1.318	5.727	3.801
7. FSG-AR-M	18.100	24.133	16.100
N 5	4.904	8.404	13.984
8. FSG-AR-F	17.979	27.042	22.458
N 8	2.812	6.788	10.590
9. FSM-TR-M	18.750	32.000	12.375
N 2	0.354	15.556	17.501
10. FSM-TR-F	16.500	19.250	12.250
N 2	9.192	6.718	.354
11. FSM-AA-M	18.556	25.630	8.667
N 9	9.012	9.973	7.000
12. FSM-AA-F	18.271	26.812	22.500
N 8	6.934	8.088	13.178
13. FSM-AR-M	20.389	28.630	23.704
N 9	16.163	15.685	31.139
14. FSM-AR-F	20.982	31.963	23.148
N 9	8.758	7.741	15.510

TABLE 16

SPEAKING AND WRITING MEASURES

GERMAN

Ten Percent Random Sample of Randomly Assigned Classes

MEANS AND STANDARD DEVIATIONS

N=Number of Classes Sampled

Group	Mid-Year Speaking	Final Speaking	Final Writing
1. TLM-M N 5	30.950 4.904	30.933 4.493	39.600 9.228
2. TLM-F N 4	27.417 9.227	26.750 7.890	37.417 14.968
3. FSG-TR-M N 4	25.500 7.382	27.500 7.594	35.937 12.457
4. FSG-TR-F N 3	32.278 4.151	30.333 2.887	41.222 11.007
5. FSG-AA-M N 2	25.500 10.607	29.000 5.657	21.000 8.485
6. FSG-AA-F N 3	25.667 1.453	26.944 8.506	31.750 4.818
7. FSG-AR-M N 5	22.700 9.217	25.900 8.961	18.100 10.176
8. FSG-AR-F N 6	23.250 9.464	24.917 7.459	28.500 11.292
9. FSM-TR-M N 4	24.396 5.133	26.333 4.028	32.917 11.760
10. FSM-TR-F N 3	17.000 12.288	22.667 6.658	20.333 12.097
11. FSM-AA-M N 4	20.146 1.866	18.812 3.976	24.312 3.659
12. FSM-AA-F N 5	25.667 1.453	27.100 10.490	41.633 23.756
13. FSM-AR-M N 6	21.222 8.290	25.389 7.221	22.833 10.542
14. FSM-AR-F N 3	29.667 8.893	34.333 11.094	35.833 12.868

TABLE 17

ANALYSIS OF VARIANCE

TAPE RECORDER vs AUDIO-ACTIVE vs AUDIO-RECORD SYSTEMS

FINAL TEST	FRENCH (35 Classes)		GERMAN (24 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. Mid-Year LB Speaking	.514	.601	.149	.862
2. LA Speaking	1.570	.217	.204	.817
3. LA Writing	.827	.442	1.767	.185

TABLE 18

ANALYSIS OF COVARIANCE

FUNCTIONAL SKILLS CLASSES

Criterion: Final LA Speaking Test Total

Covariate: Mid-Year LB Speaking Test Total

CONTRAST	FRENCH (14 Classes)		GERMAN (12 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. FSG vs FSM	3.764	.057	.093	.762
2. TR vs AA vs AR	1.835	.169	.454	.639
3. SEX	.654	.422	.336	.566

TABLE 19

ANALYSIS OF COVARIANCE

FINAL SPEAKING SUB-TESTS

TR vs AA vs AR

randomly assigned classes only

FRENCH (35 Classes)

Variable	F-ratio	Probability
1. Mimic.	2.047	.139
2. Crit. Snds.	.562	.573
3. Global	.674	.514
4. Pict. Ques.	1.171	.317
5. Pict. Des.	1.231	.300
6. Pict. Seq.	1.211	.305
7. Total	1.570	.217

GERMAN (24 Classes)

Variable	F-ratio	Probability
1. Mimic.	.121	.887
2. Crit. Snds.	.072	.931
3. Global	.267	.767
4. Pict. Ques.	.245	.784
5. Pict. Des.	.376	.689
6. Pict. Seq.	1.000	.378
7. Total	.204	.817

TABLE 20

ANALYSIS OF COVARIANCE

MLA COOPERATIVE CLASSROOM WRITING TEST

TLM vs FSG+FSM-TR

FRENCH (35 Classes)

Variable	F-ratio	Probability	
1. Fill-in Sent.	4.980	.029*	TLM >
2. Sent. rewrite	13.656	.001**	TLM >
3. Paragraph	4.953	.029*	TLM >
4. Write Total	9.790	.003**	TLM >

GERMAN (24 Classes)

Variable	F-ratio	Probability
1. Fill-in Sent.	1.101	.300
2. Sent. rewrite	3.278	.077
3. Paragraph	.371	.546
4. Write Total	1.599	.213

Among the French non-laboratory groups it is of interest to note the progress of the three groups on the Critical Sounds portion of the Speaking Test, reflected in the Speaking Test Total.

		Mid-yr. mean	Final mean	Mean Gain
Critical Sounds:				
	TLM	1.79	5.27	3.46
	FSG+FSM-TR	2.02	3.76	1.74

Students in the "traditional" sample scored slightly lower than combined "Functional Skills" students in "critical sounds" at mid-year on Form LB but far out-scored them on the final testing on Form LA. This difference, when adjusted with the mid-year test as a covariate, was significant with a probability of .008 in favor of the "traditional" classes.

In summary, the laboratory system had no measurable effect on Speaking Test scores. Traditional students did significantly better than both Functional Skills strategies on the Writing Test.

PART 2: PREDICTORS OF FOREIGN LANGUAGE ACHIEVEMENT

A large number of studies extending over a period of more than half-a-century have addressed themselves to the prediction of student success in second language learning. Generally such measures as intelligence, aptitude and scholastic ability have shown themselves to be rather consistent predictors of foreign language achievement.

Within the scope of the experiment an attempt was made to replicate these studies and attempt to define some possible predictive measures. This study included the computation of the relationship among various language skills, the correlations between pre-experimental and final achievement and the development of multiple correlation coefficients for the identification of significant predictors.

THE RELATIONSHIP AMONG LANGUAGE SKILLS

The existence of a strong relationship among the various language skills is obvious. Also readily apparent is the ordering of skills--speech perception must precede accurate speech production and productive writing pre-supposes some reading skill. All skills make use of the common core of structure, morphology and vocabulary.

In an artificial environment imposed upon foreign language learning by the school milieu, insights into the nature of these relationships may prove of value. Therefore, correlations between student achievement scores on the various measures were computed (See Tables 21, 22 and 23).

Only one of the fifty-two correlation coefficients was not statistically significant. While a few were significant at the .05 level, most were significant far beyond the .01 level of probability. The Listening Discrimination Test score--a skill not usually cultivated in foreign language teaching--correlated significantly with achievement in the other language skills.

TABLE 21

MEANS AND INTERCORRELATIONS AMONG PRE-EXPERIMENTAL MEASURES

FRENCH, N = 1248

	Mean	S.D.	r2	r3	r4	r5	r6	r7	r8	r9
1. Lang. IQ	113.0	11.29	.492	.870	.309	.420	.356	.473	.164	.105
2. Non-L IQ	111.0	12.40		.842	.219	.322	.253	.349	.129	.079
3. IQ, Ttl.	113.5	11.04			.311	.438	.358	.484	.103	.110
4. MLAT,Spel	13.1	7.31				.403	.292	.753	.131	.062
5. MLAT,Wds	18.4	7.31					.465	.831	.180	.093
6. MLAT,Prs	14.8	5.79						.707	.168	.064
7. MLAT,Ttl.	46.1	16.03							.206	.098
8. Coop.Ttl.	25.0	11.14								.394
9. LA Listen	9.6	3.70								---

GERMAN, N = 922

	Mean	S.D.	r2	r3	r4	r5	r6	r7	r8	r9
1. Lang. IQ	114.7	10.17	.295	.829	.160	.361	.273	.375	.008	-.058
2. Non-L IQ	113.1	17.33		.318	.282	.222	.438	.155	.111	.383
3. IQ, Ttl.	115.1	10.75			.076	.380	.158	.404	-.005	-.208
4. MLAT,Spel	13.6	9.27				.257	.343	.677	.087	.185
5. MLAT, Wds	17.9	8.02					.396	.769	.026	-.079
6. MLAT,Prs	14.8	6.11						.596	.096	.224
7. MLAT,Ttl.	46.1	16.65							.050	-.063
8. Coop. Ttl.	27.1	10.75								.426
9. LA Listen	11.0	4.73								---

$r = .195$ $p. < .05$, $r = .254$ $p. < .01$.

TABLE 22

CORRELATIONS AMONG FOREIGN LANGUAGE SKILLS

FRENCH, N = 1248

Variable	2.	3.	4.	5.
1. Listening Discrimination	.335	.260	.400	.382
2. LA Listening Comprehension		.507	.423	.392
3. LA Reading			.581	.616
4. LA Speaking				.576
5. LA Writing				---
6. Coop Reading	.450	.560	.206	.648
7. Coop Vocabulary	.276	.416	.213	.557
8. Coop Grammar	.341	.467	.279	.640

Random sample, N = 205

GERMAN, N = 922

Variable	2.	3.	4.	5.
1. Listening Discrimination	.264	.315	.320	.269
2. LA Listening Comprehension		.308	.638	.511
3. LA Reading			.354	.328
4. LA Speaking				.582
5. LA Writing				---
6. Coop Reading	.623	.326	.593	.626
7. Coop Vocabulary	.508	.178	.485	.452
8. Coop Grammar	.353	.225	.435	.507

Random sample, N = 138

$r = .195\ p. < .05$, $r = .254\ p. < .01$.

TABLE 23

CORRELATIONS BETWEEN PRE-EXPERIMENTAL MEASURES AND STUDENT FINAL ACHIEVEMENT SCORES

FRENCH, N=1248

	Mid-yr. measures			Final measures					
	LBLn	LBRd	Spk.	LnDm	LALn	LARd	Spk.	Wrt.	CoTtl.
1. Lang IQ	.266	.111	.269	.386	.312	.344	.293	.275	.336
2. Non-Lang IQ	.184	.088	.211	.332	.232	.205	.183	.159	.173
3. IQ, Total	.262	.144	-.038	.419	.318	.316	.012	-.124	.294
4. MLAT, Total	.331	.126	.344	.425	.419	.394	.388	.447	.332
5. Coop. Total	.288	.192	---	.056	.210	.202	---	---	.278
6. LA Listen	.450	.266	.358	.175	.330	.333	.302	.120	.388

GERMAN, N=922

	Mid-yr. measures			Final measures					
1. Lang IQ	.104	.031	.326	.298	.176	.137	.385	.011	.113
2. Non-Lang IQ	.398	.315	.423	.077	.310	.144	-.070	.928	.689
3. IQ Total	-.038	.102	.028	.382	.065	.103	.390	-.576	-.150
4. MLAT,Total	.085	-.002	.301	.465	.200	.195	.473	-.074	.092
5. Coop Total	.401	.318	---	.090	.381	---	---	---	.254
6. La Listen	.507	.385	.378	.086	.403	.173	-.077	.880	.529

$r = .195$ p. $< .05$, $r = .254$ p. $< .01$.

MULTIPLE REGRESSION COEFFICIENTS

The three best predictors for achievement on final Listening, Reading, and Cooperative Tests were computed from the following variables:

1. English Grade
2. Social Studies Grade
3. Language I.Q.
4. Total I.Q.
5. Modern Language Aptitude Test (MLAT)
6. Pre-experimental Listening Test

The population was composed of students who began to study French or German in the 9th, 10th and 11th grades. The English and Social Studies grades were those the student earned the previous year. These grades ranged from A to D and were recorded as values from 4 to 1 respectively. "F" grades, or failures, totaled only five among the total population. These were eliminated in order to avoid calculations involving zero.

Each of the three final tests was first compared with the English Grade, Language I.Q., Total I.Q., MLAT, and the pre-experimental Listening Test. The same procedure was repeated by replacing the English grade with the Social Studies grade.

The following tables identify the three variables found to be the best predictors for each criteria and their multiple correlation coefficient (R). The predictors are listed as (a) when the English grade was one of the variables, and as (b) when the Social Studies grade was one of the variables. When the predictors are identical they are listed only as (a).

The three best predictors for final Listening, Reading, and Cooperative Test scores at the end of the first year of French and German proved to be (1) Modern Language Aptitude Test (MLAT); (2) the Pre-experimental Listening Test; and (3) the "Language I.Q." portion of the California Short-Form Test of Mental Maturity.

TABLE 24

9th GRADE, CRITERION: FINAL LISTENING TEST

Predictors

FRENCH a) C = .173 MLAT + .340 Listening Test + 1.147 English Grade + .880 R=.69
b) C = .177 MLAT + .346 Listening Test + .044 Language I.Q. -1.014 R=.68

Probability = $<.01$

N = 28

GERMAN a) C = .147 MLAT -.077 Total I.Q. + .091 Listening Test + 14.168 R=.64

Probability = $<.01$

N = 28

9th GRADE, CRITERION: FINAL READING TEST

Predictors

FRENCH a) C = .194 MLAT + .564 Listening Test + 1.596 English Grade -2.625 R=.77
b) C = .195 MLAT + .523 Listening Test + 1.499 Social Studies Gr. -1.374 R=.76

Probability = $<.01$

N = 28

GERMAN a) C = .087 MLAT + .293 Listening Test + 1.042 English Grade + 4.202 R=.67
b) C = .109 MLAT + .378 Listening Test -.092 Language I.Q. + 15.893 R=.66

Probability = $<.01$

N = 28

9th GRADE, CRITERION: FINAL COOPERATIVE TEST

Predictors

FRENCH a) C = .677 MLAT + 1.069 Listening Test + .282 Language I.Q. -27.763 R=.88

Probability = $<.01$

N = 28

GERMAN a) C = .390 MLAT -.154 Language I.Q. + 5.630 English Grade + 20.159 R=.69
b) C = .370 MLAT -.134 Total I.Q. + .916 Socal Studies Grade + 34.264 R=.62

Probability = $<.01$

N = 28

TABLE 25

10th GRADE, CRITERION: FINAL LISTENING TEST

Predictors
FRENCH a) C = .129 Language I.Q. + .093 MLAT + .342 Listening Test -7.256 R=.52
Probability = < .01
N = 150

GERMAN a) C = .561 Listening Test + 1.064 English Grade + .077 Total I.Q. -2.105 R=.43
b) C = .552 Listening Test + 1.171 Social Studies Gr. + .108 MLAT +2.008 R=.49
Probability = <.01
N = 175

10th GRADE, CRITERION: FINAL READING TEST

Predictors
FRENCH a) C = .064 MLAT + .024 Language I.Q. + .090 Listening Test + 9.731 R=.29
b) C = .056 MLAT + .640 Social Studies Gr. + .102 Listening Test + 10.927 R=.31
Probability = <.01
N = 150

GERMAN a) C = .374 Listening Test + .109 Language I.Q. + .304 English Gr. 2.311 R=.33
b) C = .346 Listening Test + 1.197 Social Studies Gr. + .035 MLAT + 6.579 R=.35
Probability = <.01
N = 175

10th GRADE, CRITERION: FINAL COOPERATIVE TEST

Predictors
FRENCH a) C = .312 MLAT + .280 Total I.Q. -.788 English Grade -.708 R=.46
b) C = .296 MLAT + .275 Total I.Q. -.388 Social Studies Grade -.529 R=.46
Probability = <.01
N = 150

GERMAN a) C = .352 MLAT + 4.799 English Grade + .9·7 Listening Test + 9.823 R=.45
b) C = 6.353 Social Studies Gr. + .367 MLAT + .972 Listening Test + 3.477 R=.49
Probability = <.01
N = 175

TABLE 26

11th GRADE, CRITERION: FINAL LISTENING TEST

Predictors

FRENCH a) C = .131 MLAT + .212 Total I.Q. -.049 Language I.Q. -8.002 R=.53
b) C = .133 MLAT + 1.317 Social Studies Gr. + .015 Language I.Q. + 4.938 R=.51
Probability = $< .01$
N = 52

GERMAN a) C = .233 Language I.Q. -.042 MLAT + .086 Listening Test -10.936 R=.37
Probability = $> .05$
N = 56

11th GRADE, CRITERION: FINAL READING TEST

Predictors

FRENCH a) C = .122 MLAT 146 Language I.Q. -.261 English Grade -4.105 R=.41
b) C = .097 MLAT + .136 Language I.Q. + .507 Social Studies Gr. -3.911 R=.42
Probability = $< .05$, $> .01$
N = 52

GERMAN a) C = .148 Language I.Q. -.027 MLAT -.080 Listening Test + .955 R=.25
b) C = .177 Language I.Q. -.026 MLAT -.886 Social Studies Grade -.661 R=.27
Probability = $> .05$
N = 56

11th GRADE, CRITERION: FINAL COOPERATIVE TEST

Predictors

FRENCH a) C = .422 MLAT + .420 Language I.Q. + .774 English Grade -25.460 R=.61
b) C = .401 MLAT + 1.936 Social Studies Gr. + .400 Language I.Q. -25.355 R=.62
Probability = $< .01$
N = 52

GERMAN a) C = 1.160 Language I.Q. + .056 MLAT -8.880 English Grade -62.493 R=.50
Probability = $< .01$

b) C = 1.140 Language I.Q. -.150 MLAT -3.423 Social Studies Gr. -64.109 R=.41
Probability = $< .05$, $> .01$
N = 56

PART 3: THE RELATIONSHIP OF STRATEGY AND SYSTEM TO STUDENT ABILITY

With the data available to the Project, it was possible to investigate a number of factors which may exert some influences on second language achievement in the first year of study. These were "Objective 6: To determine whether 'strategy' and 'system' effectiveness is related to student ability." The examination of the data revealed a number of results stemming from the evaluation of this objective. Among these were fundamental differences between students electing French and those electing German and the age, grade, and sex of the learner. Each of these was examined and is reported separately in this section of the report.

DIFFERENCES BETWEEN LANGUAGE GROUPS

At the beginning of the experiment four measures were given to all students. Two of these - the LA Listening Comprehension Test and the Cooperative French/German Tests - do not permit comparison across languages. The other two, intelligence and language aptitude, were directly comparable to ascertain if initial differences existed between students electing to study French and those choosing to learn German.

Intelligence Difference

All students were administered the California Short-Form Test of Mental Maturity at the commencement of the experiment. Data for the two language groups are illustrated in Table 27 with the German students consistantly scoring slightly higher on the test.

TABLE 27

INTELLIGENCE TEST SCORES

Cal. Test Ment. Mat.	French (N-1248)		German (N=922)	
	Mean	S.D.	Mean	S.D.
Language I.Q.	113.0	11.29	114.7	10.17
Non-Language I.Q.	111.0	12.40	113.1	11.33
Total I.Q.	113.5	11.02	115.1	10.24

Pre-experimental scores on the LA Listening Comprehension Test and the Cooperative French/German Tests are also higher for the German students but, as stated before, the difference in instruments across language prohibits comparison.

Aptitude Differences

Both French and German groups were given the Modern Language Aptitude Test as a pre-experimental measure. Data is illustrated in Table 28 and shows that both groups were comparable in "foreign language aptitude" as measured by the Carroll-Sapon Test.

TABLE 28

MODERN LANGUAGE APTITUDE TEST SCORES

MLAT-Short Form	French (N=1248)		German (N=922)	
	Mean	S.D.	Mean	S.D.
1. Spelling	13.1	7.31	13.6	9.27
2. Words in Sentences	18.4	7.71	17.9	8.02
3. Paired Associates	14.8	5.79	14.8	6.11
4. Total Score	46.1	16.03	46.1	16.65

THE RELATIONSHIP OF STRATEGY TO STUDENT ABILITY

In attempting to determine if any relationship existed between "student ability" and the teaching strategy, "Student Ability" was defined in terms of the two main pre-experimental measures - the Modern Language Aptitude Test (MLAT) and the California Test of Mental Maturity (I.Q.). These two measures have a very significant interrelationship: French r = .484 for 1,248 students and German r = .404 for nine hundred and twenty-two students. These also correlated significantly with overall student achievement in French but not in German as shown in Table 29.

TABLE 29

CORRELATION WITH FINAL TEST SCORES

MLAT	LA Listen	LA Read	Cooperative
French	.419	.394	.332
German	.200	.195	.092
I.Q.			
French	.318	.316	.294
German	.065	.103	-.150

$r = .195 \; p. < .05$, $r = .254 \; p. < .01$.

The student population was divided into three groups: "High" aptitude, "Middle" aptitude and "Low" aptitude. The criterion for division was the distance from the population mean--one standard deviation above or below the mean as indicated below.

The process was duplicated for grouping by "ability" based on the total I.Q. score on the California Test of Mental Maturity. Each group was then divided into students who had been taught by the Traditional approach (TLM), the Functional Skills Method (FSM) and the Functional Skills + Grammar strategy (FSG). The nine groups were then compared by an analysis of variance followed by the Tukey "A" test to compare the differences between means for significance. Pertinent statistical tables have been placed in Appendix E.

TABLE 30

GROUPING OF STUDENTS BY ABILITY

	LOW				MIDDLE				HIGH			
Groups	TLM	FSG	FSM	Tot.	TLM	FSG	FSM	Tot.	TLM	FSG	FSM	Tot.
Aptitude												
French	46	88	45	179	147	304	388	839	19	99	110	228
German	19	70	54	143	90	256	260	606	26	65	81	172
I.Q.												
French	25	91	50	176	167	326	414	907	20	74	80	174
German	9	42	39	90	99	296	299	694	27	81	59	137

As would be expected, the division by aptitude and intelligence yielded similar but not necessarily equal groups in both French and German. The highly significant correlation between both of these measures was reflected again in the data with students in the "High" aptitude and intelligence groups doing consistently and significantly better than low or middle groups on all three final measures: Listening Comprehension, Reading and the Cooperative French/German Test with its reading, vocabulary and grammar sub-tests.

On the final Listening Test score, both aptitude and intelligence achievement increased markedly from "Low" to "High" groups. Within the individual groups there seemed to be little difference in achievement based on strategy (Tables 94, 95, 100 and 101, Appendix E).

On the LA Reading Test the German "Mid" group had strategy differences in aptitude in favor of TLM classes but not the "High" or "Low" students. In French, strategy had an important effect on reading achievement in all but the "Low" intelligence group in favor of TLM students.

"Traditional" (TLM) students did significatly better than FSG or FSM students on the older Cooperative Tests. The structural materials presented to the FSG students were apparent in this data and seemed to have aided achievement by French students and inhibited German students. Students with "Low" aptitude or intelligence in the TLM strategy often did as well or better than "High" students in FSG and FSM strategies.

In summary, aptitude and intelligence were reflected in final achievement scores. Strategy seemed to have had little effect on the final Listening Comprehension Test scores but a marked influence on the Reading Test and Cooperative Test scores in favor of the "Traditional" strategy.

FINAL ACHIEVEMENT AND STUDENT MATURITY

Much research and discussion has been directed to the role of student maturity - both chronological and educational - and second language learning. Within the framework of the experimental population it was felt advisable to investigate the relationship between student age and final achievement regardless of teaching strategy. As reported in Table 31, there was absolutely no correlation between student age (in months) and his achievement at the end of one year of study.

Student grade placement and relative achievement were compared by an analysis of variance (Tables 32 and 33). In this analysis twelth grade students (N=15) were not included. There were no significant differences among the means of the various grades.

TABLE 31

RELATIONSHIP OF AGE TO FINAL ACHIEVEMENT TESTS

Group	Mean Age Mos.	r Age: Listen	r Age: Read	r Age: Coop.
German				
Male (N 576)	177.8	.059	.071	.050
Female (N 347)	177.4	.071	.138	.083
French				
Male (N 537)	178.6	-.035	-.098	-.170
Female (N 710)	176.6	.046	.052	-.026

TABLE 32

COMPARISON OF ACHIEVEMENT BY GRADE

FRENCH

	LA Listen		LA Read		Cooperative	
Grade	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. 8th, N=50	14.06	5.72	14.64	5.63	39.28	15.03
2. 9th, N=680	14.35	4.87	15.96	4.63	42.05	15.01
3. 10th, N=270	15.30	7.05	15.66	5.39	38.79	16.07
4. 11th, N=232	14.50	6.19	15.65	5.28	38.80	14.24

The differences between group means are not significant on any test.

TABLE 33

COMPARISON OF ACHIEVEMENT BY GRADE

GERMAN

Grade	LA Listen Mean	LA Listen S.D.	LA Read Mean	LA Read S.D.	Cooperative Mean	Cooperative S.D.
1. 9th, N=524	15.70	5.75	14.96	3.15	46.45	15.52
2. 10th, N=176	14.89	4.39	15.11	4.34	45.44	14.88
3. 11th, N=186	16.49	5.17	15.74	5.21	48.44	13.97

The differences between group means are not significant on any test.

SEX AS A FACTOR IN STUDENT ABILITY

Throughout the analysis of Project data a wide difference was seen to exist between male and female students on a large number of measures. Some of these will be discussed in succeeding sections of the report dealing with "Student Opinion Changes". Sex was also used as a dimension in the analysis of class achievement by teaching strategy and laboratory treatment. The reader should also refer to the Tables of Part I and Appendix D, which indicated that females achieved superior results on a number of measures.

Since sex seemed to be such a dominant factor throughout, a short separate study was made of the role of sex in second language learning in the Project population. An extensive search of published research by Mr. Helmut Baranyi of the Project Staff revealed much professional awareness of sex as a differentiating factor in foreign language learning but no direct research on the exploitation of this factor to facilitate learning.

A series of univariate tests of significance between pre-experimental class means by sex was run and is reported in Tables 34 and 35. As can be seen, there existed no differences in intelligence scores between the sexes but there was a marked difference on the Aptitude Test scores. Girls scored significantly better on the test in both the French and German populations.

Table 36 shows the analysis of male and female students' final scores when the entire population was considered on an individual basis and subjected to an analysis of variance. Tukey "A" tests indicated singificant differences by sex on the final test scores. An analysis of covariance using class means is reported in Tables 37 and 38. This again indicated differences on the French Cooperative Test but none on the Listening or Reading tests. Overall, females achieved considerably better than males and had significantly better attitudes toward foreign language learning.

TABLE 34

MALE vs FEMALE FRENCH STUDENTS

Univariate Test of Significance Between Class Means by Sex

Measure	F-ratio	Probability
Pre-experimental		
1. Language IQ	2.226	.139
2. Non-Language IQ	2.147	.146
3. Total IQ	3.092	.082
4. MLAT III: Spelling	6.989	.010** F > M
5. MLAT IV: Words	3.850	.053* F > M
6. MLAT V: Paired Associates	4.893	.029* F > M
7. MLAT Total	7.853	.006** F > M
8. Coop. I. Reading	.175	.677
9. Coop. II. Vocabulary	.395	.531
10. Coop. III. Grammar	.673	.414
11. Coop. Total	.440	.509
12. LA Listening	.002	.967

* p. < .05, ** p. < .01.

TABLE 35

MALE vs FEMALE GERMAN STUDENTS

Univariate Test of Significance Between Class Means by Sex

Measure	F-ratio	Probability	
Pre-experimental			
1. Language I.Q.	.240	.626	
2. Non-Language I.Q.	1.480	.228	
3. Total I.Q.	.826	.367	
4. MLAT III: Spelling	4.215	.044*	F > M
5. MLAT IV: Words	4.040	.048*	F > M
6. MLAT V: Paired Associates	16.537	.001**	F > M
7. MLAT Total	9.086	.004**	F > M
8. Coop. I. Reading	.103	.749	
9. Coop. II. Vocabulary	.092	.762	
10. Coop. III. Grammar	1.657	.202	
11. Coop. Total	.105	.747	
12. LA Listening	.354	.554	

* p. < .05, ** p. < .01.

TABLE 36

COMPARISON OF FINAL ACHIEVEMENT BY SEX

	LA Listen			LA Read			Cooperative		
	MEAN	S.D.	C.R.	MEAN	S.D.	C.R.	MEAN	S.D.	C.R.
French									
Male (N537)	13.90	5.85	p.<.01	14.91	4.81	p.<.01	37.67	14.27	p.<.01
Female (N710)	15.09	5.57		16.47	4.99		42.94	15.53	
German									
Male (N576)	15.05	5.10	p.<.01	14.58	4.37	p.<.01	44.52	14.98	p.<.01
Female (N347)	16.50	5.69		16.01	5.98		48.95	15.05	

TABLE 37

FINAL TESTS, FRENCH CLASS MEANS

Analysis of covariance contrasted by Sex

Measure	F-ratio	Probability	
1. MLA Coop List Test, adjusted mid-year	2.167	.146	
2. MLA Coop Read Test, adjusted mid-year	1.999	.162	
3. Coop French Read, adjusted pre-exper.	6.449	.013**	F > M
4. Coop French Voc., adjusted pre-exper.	5.516	.022*	F > M
5, Coop French Grammar, adjusted pre-exp.	4.609	.035*	F > M
6. Coop French Total, adjusted pre-exper.	7.531	.008**	F > M

* p. < .05, ** p. < .01.

TABLE 38

FINAL TESTS, GERMAN CLASS MEANS

Analysis of Covariance Contrasted by Sex

Measure	F-ratio	Probability	
1. MLA Coop List, adjusted mid-year	.013	.909	
2. MLA Coop Read, adjusted mid-year	.122	.727	
3. Coop German Reading, adjusted pre-exp.	2.096	.151	
4. Coop German Voc., adjusted pre-exper.	4.988	.028*	F > M
5. Coop German Grammar, adjusted pre-exp.	1.987	.162	
6. Coop German Total, adjusted pre-exper.	3.975	.049	

* p. < .05, ** p. < .01.

In summary, female students achieved significantly better than male students on a great number of measures. This appeared initially in student aptitude and showed up on measures of final achievement.

PART 4: STUDENT ATTITUDES AND EXPECTATIONS

In order to assess Objectives 7, "To identify and compare student attitudes...", at three points during the first year of instruction--September, January, and May--all students in the experiment completed a Student Opinion Scale. This scale consisted of eighteen polar adjective pairs. Students were asked to respond from 1 to 7 on all eighteen pairs with reference to the opinion they held concerning the study of a foreign language. The scale is reproduced in Appendix F.

The identical scale was given at the three administrations but in inverted order. The same scale was used to assess the attitudes of experimental teachers during the pre-experimental workshop.

The completed scales of students who finished the first year of instruction were scored by an especially written IBM 1620 Computer program which reversed scrambled items and computed a mean opinion index on a 1-7, bad to good, scale and statistically analyzed for variances indicative of significance. A one-way analysis of variance was used as a preliminary test due to the many combinations of variables tested, each with a different number of experimental students. When the F-Ratio indicated the existence of significance, individual group means were compared with other means in the Tukey "A" Multiple Range Test. Such large numbers of students were analyzed that the effect of wide variations in magnitude were minimized and the resultant critical ratios became quite meaningful.

Since preliminary analysis of Project data had indicated that sex is an important factor in foreign language learning, analysis of variance was used to compare this factor for all Project students at the beginning of instruction in September of 1965. The results are included in Table 39.

Table 40 illustrates the attitude changes reported by the entire student populations through the year of instruction with an extremely significant change by January and another significant change by May. Despite such change, reported mean attitudes were still on the positive side at the end of the year.

It was desirable in the light of the objectives of the research design to determine if the teaching strategy employed had an effect on student attitude. The analysis of variance was applied to all students by language, strategy and sex. This is shown in Tables 41 through 44 which indicate that student attitude shifts during the year were constant regardless of the teaching strategy to which they were exposed.

TABLE 39

STUDENT OPINION SCALES

PRE-EXPERIMENTAL MEANS, GROUP COMPARISONS

7-Point Scale

	N	Mean	S.D.	F-ratio	Probability
French:					
Male	677	5.17	.79	87.64	.01
Female	848	5.53	.69		
German:					
Male	685	5.33	.70	20.06	.01
Female	424	5.52	.65		
Male:					
French	592	5.19	.78		.01
German	618	5.32	.69		
Female:					
French	797	5.52	.69		
German	422	5.53	.65		

TABLE 40

STUDENT OPINION CHANGES

TOTAL POPULATIONS

7-Point Scale

	N	Mean	S.D.	F-ratio	Probability
French:					
Pre-exp	1389	5.38	.75	90.11	.01
Mid-exp	1389	5.06	.94		.01
Post-ex	1389	4.91			
German:					
Pre-exp	1040	5.43	.72	50.72	.01
Mid-exp	1040	5.17	.89		.01
Post-ex	1040	5.04	1.05		

TABLE 41

STUDENT OPINION CHANGES

BY STRATEGY AND SEX - FRENCH, MALE

7-Point Scale, F-Ratio = 13.488

STRATEGY		N	MEAN	S.D.
1. TLM:	Pre-	95	5.25	.65
2. TLM:	Mid-	95	4.68	1.00
3. TLM:	Post-	95	4.48	1.26
4. FSG:	Pre-	230	5.17	.77
5. FSG:	Mid-	230	4.79	.96
6. FSG:	Post-	191	4.60	1.11
7. FSM:	Pre-	267	5.19	.84
8. FSM:	Mid-	266	4.89	.94
9. FSM:	Post-	339	4.71	1.15

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	6.	2.	9.	5.	8.	4.	7.	1.
3.	4.48	.12	.20	.23	.31*	.41**	.69**	.71**	.77**
6.	4.60		.08	.11	.19	.29*	.57**	.59**	.65**
2.	4.68			.03	.11	.21	.49**	.51**	.57**
9.	4.71				.08	.18	.46**	.48**	.54**
5.	4.79					.10	.38**	.40**	.46**
8.	4.89						.28**	.30*	.36**
4.	5.17							.02	.08
7.	5.19								.06
1.	5.25								---

* p.$<$.05, ** p.$<$.01.

TABLE 42

STUDENT OPINION CHANGES

BY STRATEGY AND SEX - FRENCH, FEMALE

7-Point Scale, F-Ratio 11.329

STRATEGY	N	MEAN	S.D.
1. TLM, Pre-	114	5.57	.67
2. TLM, Mid-	114	5.18	.85
3. TLM, Post-	114	5.07	.87
4. FSG, Pre-	357	5.47	.72
5. FSG, Mid-	354	5.25	.85
6. FSG, Post-	394	5.19	.96
7. FSM, Pre-	326	5.56	.65
8. FSM, Mid-	327	5.25	.99
9. FSM, Post-	256	5.08	1.08

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	9.	2.	6.	5.	8.	4.	7.	1.
3.	5.07	.01	.11	.12	.18	.18	.40**	.49**	.50**
9.	5.08		.10	.11	.17	.17	.39**	.48**	.49**
2.	5.18			.01	.07	.07	.29**	.38**	.39**
6.	5.19				.06	.06	.28**	.37**	.38**
5.	5.25					.00	.22**	.31**	.32**
8.	5.25						.22**	.31**	.32**
4.	5.47							.09	.10
7.	5.56								.01
1.	5.57								---

* p. $<$ .05, ** p. $<$ .01.

TABLE 43

STUDENT OPINION CHANGES
BY STRATEGY AND SEX - GERMAN, MALE

7-Point Scale, F-Ratio = 6.935

STRATEGY	N	MEAN	S.D.
1. TLM, Pre-	98	5.28	.74
2. TLM, Mid-	98	5.10	.82
3. TLM, Post-	98	5.06	.86
4. FSG, Pre-	271	5.34	.72
5. FSG, Mid-	290	5.12	.88
6. FSG, Post-	290	4.90	1.14
7. FSM, Pre-	249	5.32	.64
8. FSM, Mid-	250	5.05	.91
9. FSM, Post-	249	4.99	1.09

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	9.	8.	3.	2.	5.	1.	7.	4.
6.	4.90	.09	.15	.16	.20	.22	.38**	.42**	.44**
9.	4.99		.06	.07	.11	.12	.29*	.33*	.35**
8.	5.05			.01	.05	.07	.23	.27	.24*
3.	5.06				.04	.06	.22	.26	.28
2.	5.10					.02	.18	.22	.24
5.	5.12						.16	.20	.22
1.	5.28							.04	.06
7.	5.32								.02
4.	5.34								---

* p.$<$.05, ** p.$<$.01.

TABLE 44

STUDENT OPINION CHANGES

BY STRATEGY AND SEX - GERMAN, FEMALE

7-Point Scale, F-Ratio = 5.818

STRATEGY	N	MEAN	S.D.
1. TLM, Pre-	51	5.57	.71
2. TLM, Mid-	51	5.25	.98
3. TLM, Post-	51	5.12	1.03
4. FSG, Pre-	174	5.52	.68
5. FSG, Mid-	174	5.38	.88
6. FSG, Post-	174	5.25	.96
7. FSM, Pre-	178	5.53	.66
8. FSM, Mid-	178	5.24	.89
9. FSM, Post-	178	5.09	.98

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	8.	6.	2.	5.	4.	7.	1.
9.	5.09	.03	.15	.16	.16	.29	.43**	.44**	.48**
3.	5.12		.12	.13	.13	.26	.40*	.41*	.45**
8.	5.24			.01	.01	.14	.28	.29	.33
6.	5.25				.00	.13	.27	.28	.32
2.	5.25					.13	.27	.28	.32
5.	5.38						.14	.15	.19
4.	5.52							.01	.05
7.	5.53								.04
1.	5.57								---

* p.< .05, ** p.< .01.

STUDENT EXPECTATIONS AND ORIENTATION

Each experimental student completed a four-page questionnaire designed to reveal insights into pupil self-concepts and expectations from second language study. Included were (1) a self-rating of general academic proficiency; (2) a self-rating of language proficiency; (3) a self estimate of verbal leadership and propensity for verbal participation; (4) a ranked preference rating of courses currently being taken; (5) a statement of planned language study; and (6) an estimate of desired language study.

The Student Opinion Scale (reproduced in Appendix F) was administered in its entirety before commencement of the treatment. The Student Opinion Index was also give in January and May. These measures were then correlated with 11 measures of achievement and aptitude for a randomly selected ten percent sample of Project sutdents. The results are found in Tables 108 and 110, Appendix F.

For the French students the September administration of the Student Opinion Index correlated significantly with both the January and May administration. All three correlated significantly with Academic and Language Self-Rating and the MLAT. The September administration correlated significantly in a negative direction with Relative Subject Rating and in general yielded no significant correlations with achievement measures.

Over subsequent administrations the disagreement of Opinion Index data with subject preference data was no longer evidenced and the Opinion Index yielded significant correlations with most of the achievement measures. Academic Self-Rating yielded significant correlations with most of the other measures. Language Self-Rating also performed as expected; however, it correlated significantly in a negative direction with Relative Subject Rating and yielded no significance with Planned Language Study. Verbal Leadership yielded no significant correlations.

Relative Subject Rating was significantly correlated with I.Q. Total and negatively correlated with the Student Opinion Index (September), Language Self-Rating and several of the language achievement tests. Planned Language Study correlated significantly only with Desired Language Study and the Student Opinion Index (September). Desired Language Study correlated significantly with the Student Opinion Index (September and January) Academic and Language Self-Ratings and the Final Writing Test.

For the German students all administrations of the Student Opinion Index intercorrelated significantly, correlated significantly with the Final Speaking and Writing Tests and correlated significantly in a negative direction with Relative Subject

Rating. Only the September administration yielded a significant correlation with the MLAT and the Language and Academic Self-Ratings. Thus, the increasing coincidence of attitude and achievement scores in evidence with the French students did not occur with the German students.

Academic Self-Rating and Language Self-Rating again correlated significantly with most of the other measures, but not with the Student Opinion Index (January and May). The significantly negative correlation between Language Self-Rating and Relative Subject Rating was not found with the German students. Verbal Leadership correlated significantly with I.Q. Total, MLAT, Student Opinion Index (September) and Academic and Language Self-Ratings.

Relative Subject Rating for German students correlated significantly in a negative direction with all administrations of the Student Opinion Index, Planned Language Study, and two achievement tests.

Planned Language Study yielded significant correlations with Language Self-Rating and Desired Language Study and correlations with Language Self-Rating and Desired Language Study and correlated significantly in a negative direction with Relative Subject Rating. Desired Language Study correlated significantly only with Planned Language Study.

Highlights of this self-rating show that the sample compared equally to other students in the Project. Most saw themselves as "average" students liking foreign language study at about the same level, 2.76, out of four or five subjects studied. Interestingly, most students indicated that they initially planned and wanted from five to six years of foreign language study--at the same time indicating that they were primarily interested in completing college entrance or high school graduation requirements.

The final portion of the questionnaire was an expectations scale in which the student was asked to rate the relative importance of twelve possible outcomes of foreign language study as it directly related to him personally. A computer program was developed by the Bureau of Research staff which then scored this expectations scale and assigned each student sampled to either a "traditional" or "audio-lingual" orientation. Ninety percent of both French and German students were classified as "traditionally" oriented.

TABLE 45

FOREIGN LANGUAGE EXPECTATIONS

French, Sample N=134: German, Sample N=88

Student's Objective of For. Lang. Study		Choice 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Item Orientation
1. To be accepted by a college.	F	62	16	13	11	1	2	15	1	---	3	2	9	TL
	%	46.3	11.9	9.7	8.2	.7	1.5	11.4	.7		2.2	1.5	6.7	
	G	34	13	13	12	2	3	5	---	---	2	3	1	
	%	38.6	14.8	14.8	13.6	2.3	3.4	5.7			2.3	3.4	1.1	
2. To fulfill college graduation requirements.	F	21	49	8	12	6	10	11	1	---	9	5	2	--
	%	15.7	36.6	6.0	9.0	4.5	7.5	8.2	.7		6.7	3.7	1.5	
	G	16	27	10	10	5	2	5	3	---	3	2	5	
	%	18.2	30.7	11.4	11.4	5.7	2.3	5.7	3.4		3.4	2.3	5.7	
3. To understand the grammar and structure of the language.	F	15	9	29	15	6	7	21	3	---	13	8	8	TL
	%	11.2	6.7	21.6	11.2	4.5	5.2	15.7	2.2		9.7	6.0	6.0	
	G	11	5	11	12	5	9	20	5	---	4	3	3	
	%	12.5	5.7	12.5	13.6	3.7	10.2	22.7	5.7		4.5	3.4	3.4	
4. To translate.	F	11	14	20	18	5	15	13	6	2	14	11	15	TL
	%	8.2	10.4	14.9	13.4	3.7	11.4	9.7	4.5	1.5	10.4	8.2	11.4	
	G	5	13	16	11	4	7	11	1	1	11	6	2	
	%	5.7	14.8	18.2	12.5	4.5	8.0	12.5	1.1	1.1	12.5	6.8	2.3	
5. To listen with understanding.	F	4	6	12	17	14	20	15	5	5	16	12	8	AL
	%	3.0	4.5	9.0	12.7	16.4	14.9	11.4	3.7	3.7	11.9	8.0	6.0	
	G	7	7	7	11	6	19	6	2	1	8	5	9	
	%	8.0	8.0	8.0	12.5	6.8	21.6	6.8	2.3	1.1	9.1	5.7	10.2	

TABLE 45 (continued)

Student's Objective of For. Lang. Study		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Item Orientation
6. To understand for. words in English literature.	F	4	13	14	17	3	20	23	6	---	20	5	9	TL
	%	3.0	9.7	10.4	12.7	2.2	14.9	17.2	4.5		14.9	5.7	6.7	
	G	3	3	12	12	7	4	14	4	4	11	8	6	
	%	3.4	3.4	13.6	13.6	8.0	4.5	15.9	4.5	4.5	12.5	9.1	6.8	
7. To enrich cultural background.	F	4	8	6	13	14	20	11	10	3	13	18	13	--
	%	3.0	6.0	4.5	9.7	10.4	14.9	8.2	7.5	2.2	9.7	13.4	9.7	
	G	3	4	4	7	5	14	5	2	4	12	18	10	
	%	3.4	4.5	4.5	8.0	5.7	15.9	5.7	2.3	4.5	13.6	20.5	11.4	
8. To correspond with "pen pals."	F	4	6	10	15	12	14	9	11	3	18	22	10	AL
	%	3.0	4.5	7.5	11.4	9.0	10.4	6.7	8.2	2.2	13.4	25.0	7.5	
	G	1	4	5	5	8	7	7	11	4	8	15	13	
	%	1.1	4.5	5.7	5.7	9.1	8.0	8.0	12.5	4.5	9.1	17.0	14.8	
9. To enjoy cartoons and comic books.	F	2	3	10	6	14	17	5	22	3	7	23	22	AL
	%	1.5	2.2	7.5	4.5	10.4	12.6	3.7	16.4	2.2	5.2	17.2	25.0	
	G	3	3	1	5	11	9	5	17	5	9	10	10	
	%	3.4	3.4	1.1	5.7	12.5	10.2	5.7	19.3	5.7	10.2	11.4	11.4	
10. To better understand English.	F	3	4	4	5	24	7	5	26	12	7	20	17	TL
	%	2.2	3.0	3.0	3.7	17.9	5.2	3.7	19.4	9.0	5.2	14.9	12.7	
	G	2	6	1	3	9	5	5	18	4	12	14	9	
	%	2.3	6.8	1.1	3.4	10.2	5.7	5.7	20.5	4.5	13.6	15.9	10.2	
11. To socialize with foreign students.	F	4	3	4	4	32	1	4	38	14	10	8	12	AL
	%	3.0	2.2	3.0	3.0	23.9	.7	3.0	28.4	10.4	7.5	6.0	9.0	
	G	2	1	4	--	20	8	3	17	9	6	4	14	
	%	2.3	1.1	4.5	---	22.7	9.1	3.4	19.3	10.2	6.8	4.5	15.9	

TABLE 45 (continued)

Student's Objective of For. Lang. Study		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Item Orien- tation
12. To be an interpreter for for. visitors.	F	---	3	4	1	3	1	2	5	92	4	--	19	AL
	%	---	2.2	3.0	.7	2.2	.7	1.5	3.7	68.7	3.0	--	14.2	
	G	1	2	4	--	6	1	2	8	56	2	--	6	
	%	1.1	2.3	4.5	--	6.8	1.1	2.3	9.1	63.6	2.3	--	6.8	

TOTALS: FRENCH - "Traditional Orientation" = 118 (88.1%).
"Audio-Lingual Orientation = 16 (11.9%).

GERMAN - "Traditional Orientation" = 80 (90.9%).
"Audio-Lingual Orientation = 8 (9.1%).

In summary, Student Opinion Scales concerning the study of a modern foreign language were administered three times during the first year of the experiment. Large opinion changes occurred from September to January with lesser but significant shifts from January to May. These shifts occurred regardless of teaching strategy but never reached the neutral position, remaining slightly positive at year's end. An initial indication of the expected outcomes of foreign language study indicated that the majority of students still were oriented toward "traditional" goals of foreign language learning.

PART 5: LEVELS OF MASTERY

The identification of expected levels of attainment in terms of both test scores and coverage of materials has been stated as Objectives 8 and 9 of the experiment. It was hoped that this would provide both a comparison of the experimental population with the published norms on standard measures and permit the establishment of "local" norms. Secondarily, pretesting permitted the identification of students with a foreign language background and permitted the establishment of baseline scores for future analyses of covariance. Objective 9 sought to identify strengths and weaknesses of the commercial test programs utilized by Project students.

ACHIEVEMENT TESTS

"Foreign Language instruction has many attractions as an area for research. Learning a foreign language in a school setting is a process in which the learner normally starts from a natural zero point..." observed John B. Carroll in his authoritative chaper in Gage's Handbook of Research on Teaching (p. 1060). In our culture today the number of students departing from the posited "normal natural zero point" may be increasing due to exposure to foreign language instruction at earlier levels and the cosmopolitanism of our society. In addition, the laws of probability make measurement of this "zero point" impossible on standard instruments now available to the profession. At times some students will score well by chance factors. To establish a starting point, students who--in theory--had never studied a foreign language were given foreign language achievement pretests.

All students were given the MLA Cooperative Classroom Listening Comprehension Test, Form LA and the Cooperative French/German Test. Student reaction to this testing varied widely. Teachers reported that many students made an honest attempt to complete or guess as many correct answers as possible. The majority of students were extremely frustrated, many marking answers randomly, many omitting entire sections of the test. A few students scored rather well.

Means and standard deviations for the experimental achievement measures are shown in Table 46. As can be seen, the students scored higher than might have been expected on pre-experimental achievement tests. The Listening Test pre-instructional means approach the fifteenth percentile on "end-of-year norms" in French and the thirty-sixth percentile in German.

TABLE 46

SCORES ON PRE-EXPERIMENTAL ACHIEVEMENT MEASURES

	French (N=1248)		German (N=922)	
	Mean	S.D.	Mean	S.D.
1. Cooperative, Reading	7.1	3.73	8.7	4.88
2. Cooperative, Vocabulary	10.9	5.57	10.8	4.72
3. Cooperative, Grammar	7.0	3.81	7.6	3.34
4. Cooperative, Total	25.0	11.14	27.1	10.75
5. LA List. Comprehension	9.6	3.70	11.0	4.73

MID-YEAR TESTS

	Mean	S.D.	Mean	S.D.
1. LB Listening	12.6	3.96	12.6	4.71
2. LB Reading	13.9	3.77	13.4	4.31
3. List. Discrimination	44.5	8.26	40.6	8.04
4. LB Speaking[1]	20.5	9.99	24.8	8.84

[1] 10% random sample, French N=205, German N=94

FINAL TESTS

	Mean	S.D.	Nat. %tile[3]	Mean	S.D.	Nat. %tile[3]
1. LA Listening	14.6	5.7	51	15.7	5.7	60
2. LA Reading	15.8	4.9	53	15.1	5.1	54
3. LA Speaking[2]	28.0	11.8	36	26.0	9.1	20
4. LA Writing[2]	21.1	17.5	63	36.5	7.8	51
5. Cooperative, Reading	11.1	5.4		16.7	7.4	
6. Cooperative, Vocabulary	18.1	6.8		16.2	5.6	
7. Cooperative, Grammar	11.4	5.0		13.3	4.8	
8. Cooperative, Total	40.7	15.2		47.1	33.2	

[2] 10% random sample, French N = 205, German N = 94

[3] Based on national sampling norms as reported by the Educational Testing Service.

National percentiles are indicated for the final test scores of the MLA Cooperative Classroom Tests. These indicate that the Project students achieved on a comparable basis with the students on whom the test norms were established except on the Speaking Test where scores are low in both French and German. National percentile figures were taken from the Booklet of Norms for the MLA Cooperative Classroom Tests published by the Educational Testing Service, 1965.

ACHIEVEMENT AND TEXT

Project teachers completing one year of experimental instruction reported average progress through the basal texts as follows:

	Mean Chapter/Unit
FRENCH TEXT 1	10.5
FRENCH TEXT 2	13
FRENCH TEXT 3	28
FRENCH TEXT 4	30
GERMAN TEXT 1	11.5
GERMAN TEXT 2	13
GERMAN TEXT 3	29

Text coverage in the functional skills classes (FSM and FSG strategies) was below the amount implied by authors and publishers but attained levels set by the Project Staff prior to the Pre-experimental Workshop.

The texts employed in the Project classes proved to have a definite relationship to student achievement as measured by tests. Scorers reported that many students in functional-skills (FSM and FSG) classes did not have a wide enough vocabulary to score well on the mid-year Speaking Test. This was often still the case at the end of the first year of instruction.

Text authors seem to have seriously overestimated the rate of progress teachers can achieve in functional skills approaches. Most German classes finished about Unit 11 or 12 of one text and about Unit 13 of another. French classes reported slightly slower progress, to about Units 10 or 11 of one and Unit 13 of the second. On the other hand, classes using "traditional" texts reported the completion or near completion of the book in every case.

This variance in rate was perhaps reflected in the analysis of variance on final scores applied to the groups of students using the several text series (Tables 47 and 48). The differences between means of the various groups was tested by means of Tukey "A" tests, most of which are highly significant. Significant differences exist between FRENCH TEXT 1 and FRENCH TEXT 2 and GERMAN TEXT 1 and GERMAN TEXT 2 even though both series are superficially quite similar.

TABLE 47

COMPARISON OF ACHIEVEMENT BY TEXT

FRENCH

	LA Listen		LA Read		Cooperative	
TEXT	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FRENCH 1 (N=721)	14.13	5.91	15.32	4.59	38.36	13.47
FRENCH 2 (N=314)	16.03	6.01	15.88	5.06	37.59	14.87
FRENCH 3 (N=133)	14.03	3.77	17.13	4.96	52.01	14.92
FRENCH 4 (N= 65)	14.42	4.15	19.11	5.98	56.95	15.20
	F=7.980 (p $<$.01)		F=15.451 (p $<$.01)		F-52.450 (p $<$.01)	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

LA Listening Test

TEXT	MEAN	1.	4.	2.
FRENCH 3	14.03	.10	.39**	2.00**
FRENCH 1	14.13		.29	1.90**
FRENCH 4	14.42			1.61**
FRENCH 2	16.03			---

LA Reading Test

TEXT	MEAN	2.	3.	4.
FRENCH 1	15.32	.56	1.81**	3.79**
FRENCH 2	15.88		1.25**	3.23**
FRENCH 3	17.13			1.98**
FRENCH 4	19.11			---

Cooperative Test

TEXT	MEAN	1.	3.	4.
FRENCH 2	37.59	.75	14.41**	19.36**
FRENCH 1	38.36		13.66**	18.61*
FRENCH 3	52.01			4.95*
FRENCH 4	56.95			---

* p.$<$.05, ** p.$<$.01.

TABLE 48

COMPARISON OF ACHIEVEMENT BY TEXT

GERMAN

TEXT	LA Listen MEAN	LA Listen S.D.	LA Read MEAN	LA Read S.D.	Cooperative MEAN	Cooperative S.D.
GERMAN 1 (N=478)	14.19	4.81	14.07	4.17	40.52	11.88
GERMAN 2 (N=308)	17.24	5.30	15.83	5.55	46.85	12.76
GERMAN 3 (N=136)	16.80	6.06	17.23	5.94	64.57	15.61
	F=36.031 ($p<.01$)		F=26.198 ($p<.01$)		F=188.098 ($p<.01$)	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

LA Listening Test

TEXT	MEAN	3.	2.
GERMAN 1	14.19	2.61**	3.05**
GERMAN 3	16.80		.44
GERMAN 2	17.24		---

LA Reading Test

TEXT	MEAN	2.	3.
GERMAN 1	14.07	1.76**	3.15**
GERMAN 2	15.83		1.39**
GERMAN 3	17.23		---

Cooperative Test

TEXT	MEAN	2.	3.
GERMAN 1	40.52	6.33**	24.05**
GERMAN 2	46.85		17.72**
GERMAN 3	64.57		---

* $p.<.05$, ** $p.<.01$.

Students using these "Functipnal Skills" texts achieved the same on the French *Reading* and *Cooperative Tests*. Among German students, however, those using TEXT 2 did consistently better than those utilizing TEXT 1. Students studying from the "traditional" texts, TEXTS 3 and 4, did much better than the "functional skills" on the more traditional *Reading* and *Cooperative Tests*.

PART 6: TEACHER FACTORS RELEVANT TO STUDENT ACHIEVEMENT

It is a sine qua non of modern foreign language education that the teacher must be proficient not only in the language he teaches but in related areas of culture, linguistics and professional preparation. For many years no instrument was available to permit measurement of teacher competency. Under the sponsorship of the Modern Language Association of America and with the support and coperation of various activities of the National Defense Education Act such instruments became a reality in 1960 with the MLA Foreign Language Proficiency Tests for Teachers and Advanced Students. These tests, coupled with gross and more subjective measures of teacher competency, were to assess Objective 10, the identification of teacher factors relevant to student achievement.

Teachers' foreign language proficiency ratings gathered by the Research Project were (1) the estimate of a competent observer based on a number of teacher visitations, (2) the teachers' estimates of their own competencies in foreign language skills and (3) objective scores obtained by teachers on the Modern Language Association Proficiency Tests for Teachers and Advanced Students.

Teacher Proficiency Tests

The MLA "Teacher Proficiency Tests" were developed to measure competencies in five modern foreign languages and in the area of professional preparation. The attainment of minimal scores on the first four parts of these tests - Listening Comprehension, Speaking, Reading and Writing - has been required by the Commonwealth of Pennsylvania for teacher certification for several years.

The one-hundred and four Project teachers were assumed to be a representative sample of the Commonwealth's French and German teachers, representing urban, suburban and rural secondary schools. Academic backgrounds and professional experience are typical. Both "traditional" and "audio-lingual" teachers were adequately represented.

Since teachers involved in the Foreign Language Research Project were experienced teachers, the majority were certified before the mandatory proficiency levels were established in 1963. However, as a part of the control of the teacher variable all Project teachers were administered both the fundamental skills portion of the Proficiency Tests and the Culture and Civilization, Applied Linguistics and Professional Preparation Tests. These were given at West Chester State College before the experiment began. Absent Project teachers were required to take the battery at the regular fall administration by the Educational Testing Service.

Only six French and one German teacher of the one hundred tested failed to achieve the state required minimum levels in all sub-parts of the test shown in Table 49.

TABLE 49

MINIMUM PROFICIENCY TEST SCORES, 1963

	French	German
Listening	29	27
Speaking	55	52
Reading	26	31
Writing	22	23

Teachers' Self-Ratings

Participating Project teachers were also asked to subjectively evaluate their own proficiency in speaking, reading and writing the foreign language they taught. These numerical ratings were on an expanded five-step scale based upon the MLA "Qualifications for Secondary School Teachers of Modern Foreign Language" which are reproduced on the next page. Forty-four French and thirty-five German teachers rated themselves 1-5 on the following scale using the MLA Qualifications as guiding criteria:

Proficiency Rating Scale

1 = Less than fair
2 = Fair
3 = Good
4 = Very Good
5 = Native

Observers' Ratings

As a control upon the classroom activities of the participating Project teachers, four Field Consultants regularly observed teachers throughout the experiment. Visits were made bi-weekly and were supplemented by extra-class discussions, conferences and workshop sessions. Each observer had many opportunities to observe and to evaluate the teacher.

QUALIFICATIONS FOR TEACHERS OF MODERN FOREIGN LANGUAGES

Competence	Superior	Good	Minimal
Listening Comprehension	Ability to follow closely and with ease all types of standard speech such as rapid or group conversation and mechanically transmitted speech.	Ability to understand conversation of normal tempo, lectures and news broadcasts.	Ability to get the sense of what an educated native says when he is making a special effort to be understood and when he is speaking on a general and familiar subject.
Speaking	Ability to speak fluently, approximating native speech in vocabulary, intonation, and pronunciation. Ability to exchange ideas and to be at ease in social situations.	Ability to talk with a native without making glaring mistakes, and with a command of vocabulary and syntax sufficient to express one's thoughts in conversation at normal speed with reasonably good pronunciation.	Ability to read aloud and to talk on prepared topics (e.g., for classroom situations) without obvious faltering, and to use the common expressions needed for getting around in the foreign country, speaking with a pronunciation understandable to a native.
Reading	Ability to read almost as easily as in English material of considerable difficulty	Ability to read with immediate comprehension prose and verse of average difficulty and mature content.	Ability to grasp directly (i.e. without translating) the meaning of simple, non-technical prose, except for an occasional word.
Writing	Ability to write on a variety of subjects with idiomatic naturalness, ease of expression, and some feeling for the style of the language.	Ability to write a simple "free composition" such as a letter with clarity and correctness in vocabulary, idiom, and syntax.	Ability to write correctly sentences or paragraphs such as would be developed orally for classroom situations and write a simple description or message without glaring errors.

Toward the end of one full school year of visiting teachers, the Field Consultants were asked to rate the foreign language abilities of the teachers they had observed. The scale used was the same as that used the previous summer by the teachers themselves. Two weeks later the Field Consultants were asked to again rate the same teachers in order to estimate the reliability of the rating procedure. The correlation between the two ratings of the teachers was .83 for French and .86 for German.

RELATIONSHIP OF OBSERVER AND TEACHER RATINGS OF PROFICIENCY

The three assessments of the teachers' proficiency in the foreign language were tabulated and processed. This is shown in Table 50.

TABLE 50

TEACHER RATINGS, MEANS AND STANDARD DEVIATIONS

	French		German	
	Mean	S.D.	Mean	S.D.
1. Observer Rating, First	3.2	.91	3.9	1.00
2. Observer Rating, Second	3.3	.84	3.9	.94
3. Observer Rating, Combined	3.3	.83	3.9	.92
4. Listening Test, MLA Tchr.	39.1	7.70	40.7	8.11
5. Speaking Test, MLA Tchr.	72.4	9.8	87.5	13.71
6. Reading Test, MLA Tchr.	46.5	8.72	50.0	10.21
7. Writing Test, MLA Tchr.	46.2	9.09	55.3	12.58
8. Four Tests Total, MLA Thr.	207.2	37.09	233.3	41.04
9. Self-rating, Speaking	2.3	1.38	2.7	1.6
10. Self-rating, Reading	2.7	1.45	2.7	1.6
11. Self-rating, Writing	2.4	1.45	2.7	1.5

The relationship of these assessments to each other was computed separately for each group of foreign language teachers. This data is shown in Tables 51 and 52. Observer ratings of teacher proficiency correlate highly with teacher scores on the _Teacher Proficiency Tests_. Teacher self-ratings do not correlate significantly with their own test scores nor the observers' ratings of their proficiency.

Teacher's Self-perception

To determine the direction and significance of the difference between the observer's ratings and the teacher's self-rating of language proficiency, the direction of variation was investigated. Each French and German teacher was assigned an "average" score based upon the three areas of self-evaluation: speaking, reading and writing. The "average" rating was then compared to the observer's ratings. Those teacher self-ratings which coincided with, exceeded or were less than the observer's composite ratings were tabulated as shown below. A contingency table was established and theoretical values of expectation computed for each group.

Self-ratings	French	German
Exceeded observer rating	13	5
Equalled observer rating	17	14
Less than observer rating	14	16

The contingency table gave a value of Chi-Square at 2.76 showing no significance in the direction of variation between the teacher's self-rating and the observer's rating of language proficiency.

The absolute lack of any relationship between the French teachers' self-ratings in the writing skill and the Writing Test scores deserved further investigation. The national median score (46, the fiftieth percentile) was established as a dividing point and a tabulation made of the direction in which teachers rated themselves. This did not prove to be significant.

French Teachers Self-ratings, Writing Skill

	Self-ratings	
	"Fair" and below	"Good" and above
Above National Median	2	13
Below National Median	6	24

The observers were not always able to correctly assess the teachers' proficiency as measured by the test. Five persons, for example, scored 73, the thirty-fifth percentile, on the French Speaking Test. Observers rated them variously as one "Fair," two "Goods," one "Very Good" and one "Native." Yet one teacher scored 91, the seventy-fifth percentile and was only judged "Good." The three persons scoring on the fiftieth percentile were rated as "Fair," "Good" and "Very Good." Observers in general over-rated the teachers. The four French teachers who were rated as "Native" all actually fell between the twenty-fifth and fortieth percentiles on the Speaking Test.

TABLE 51

CORRELATION COEFFICIENTS, FRENCH TEACHERS (N 58)

	2	3	4	5	6	7	8	9	10	11
1. Supervisor Rating, 1st	.83	.95	.48	.50	.45	.43	.43	.11	.05	.11
2. Supervisor Rating, 2nd		.95	.31	.41	.33	.43	.42	.18	.13	.20
3. Supervisor Rating, Combined			.42	.48	.41	.45	.45	.15	.09	.15
4. Listening Test				.65	.80	.72	.64	.09	.00	.02
5. Speaking Test					.64	.64	.62	.27	.16	.16
6. Reading Test						.78	.73	-.08	-.12	-.14
7. Writing Test							.75	.05	.03	.00
8. Test Total								.11	.04	.04
9. Self-rating, Speaking (N45)									.89	.89
10. Self-rating, Reading (N45)										.95
11. Self-rating, Writing (N45)										---

N 58, 50 d.f. $r = .273$ $p. < .05$, $r = .354$ $p. < .01$.

N 45, 40 d.f. $r = .304$ $p. < .05$, $r = .393$ $p. < .01$.

TABLE 52

CORRELATION COEFFICIENTS, GERMAN TEACHERS (N 42)

	2	3	4	5	6	7	8	9	10	11
1. Supervisor Rating, 1st	.86	.96	.56	.56	.57	.57	.61	.16	.05	.15
2. Supervisor Rating, 2nd		.95	.58	.57	.63	.58	.64	.15	.07	.16
3. Supervisor Rating, Combined			.60	.62	.63	.60	.66	.16	.06	.15
4. Listening Test				.79	.85	.77	.91	.31	.19	.28
5. Speaking Test					.76	.74	.91	.22	.09	.18
6. Reading Test						.88	.94	.23	13	.21
7. Writing Test							.93	.13	.01	.15
8. Test Total								.23	.11	.22
9. Self-rating, Speaking (N35)									.92	.90
10. Self-rating, Reading (N35)										.92
11. Self-rating, Writing (N35)										---

N 42, 40 d.f. $r = .304$ $p. < .05$, $r = .393$ $p. < .01$.

N 35, 30 d.f. $r = .349$ $p. < .05$, $r = .449$ $p. < .01$.

TEACHER OPINION MEASURES

At the beginning of the pre-experimental training period, teachers were asked to respond to the statement, "The way I taught French/German last year..." They completed the same set of eighteen polar adjectives that was developed for administration to experimental students (See "Student Opinion Changes", in Appendix F for an example).

Following the week-long training period the same semantic scale was completed with reference to, "The way I am going to teach French/German this year..." These scales were scored and the groups compared by an analysis of variance.

ANALYSIS OF VARIANCE, F = 2.157 (not significant)

	N	Mean	S.D.
French, pre-workshop	62	5.673	.672
French, post-workshop	59	5.578	.886
German, pre-workshop	41	5.493	.817
German, post-workshop	41	5.245	1.087

TEACHER PROFICIENCY SCORES AND CLASS ACHIEVEMENT

No published research to date has attempted to discern the direct relationship between teacher proficiency as measured by the MLA battery and the actual achievement of students. Since both teacher scores and student scores on a number of measures were available, a study was made to determine the relationships.

The scores obtained by the Project teachers on the Proficiency Tests, administered by the Project Staff and scored by the Educational Testing Service, are reported in Table 53. Also included are the published Pre-NDEA Institute percentiles which indicate that over-all the Project teachers could be assumed to be representative of the profession.

TABLE 53

TEACHER MLA PROFICIENCY TEST CONVERTED SCORES

Test	Mean	Std. Dev.	(Pre-Institute) Nat'l %-tiles
French (N52)			
Listening	39.4	7.55	60
Speaking	72.2	9.74	60-65
Reading	46.2	8.71	60-65
Writing	45.9	8.96	60
Culture and Civilization	49.7	7.81	75
Applied Linguistics	47.8	6.98	65
Professional Preparation	63.9	7.89	65
German (N37)			
Listening	39.9	7.93	55
Speaking	86.6	14.39	65
Reading	50.2	12.64	65
Writing	52.9	15.42	60
Culture and Civilization	51.1	11.43	65
Applied Linguistics	50.2	11.83	60
Professional Preparation	60.4	12.03	50

Teacher scores on all seven parts of the *MLA Teacher Proficiency Tests* were correlated with the *class mean* of the scores obtained by their students on the mid- and post-experimental achievement tests. The computations were done in 40 x 40 matrix as employed in a standard IBM 1620 Computer program. Intercorrelations among the various parts of the *MLA Teacher Proficiency Tests* and among class measures are included in Appendix G. The relationships of eighty-nine teachers' proficiency test scores to the average achievement scores of their classes is shown in the following tables. The tentative hypothesis was advanced that there was indeed a relationship between teacher proficiency and class achievement.

TABLE 54

CORRELATIONS BETWEEN TEACHER PROFICIENCY & CLASS ACHIEVEMENT

FRENCH TEACHER PROFICIENCY TEST SCORES (N52)

Class Means	Listen	Speak	Read	Write	Cult.	Ling.	Prof.Prep.
1. LB Lsn.(mid)	-.068	.005	-.104	.007	.062	.069	.069
2. LB Rd. (mid)	-.156	-.074	-.175	-.056	.105	.029	.065
3. Lsn. Dis: 1	.023	.266	-.044	.023	.203	.136	.178
4. Lsn. Dis: 2	-.002	.167	-.026	.065	.197	.225	.154
5. Lsn. Dis: 3	-.170	.123	-.162	-.070	.120	.120	.145
6. Lsn. Dis: 4	-.169	.165	-.118	-.081	.179	.108	.207
7. Lsn. Dis: T	-.111	.209	-.112	-.029	.204	.172	.202
8. LA Listen	.138	.230	.113	.181	.285*	.317*	.255
9. LA Read	-.148	-.060	-.172	-.113	.006	-.011	-.036
10. Coop. Read	-.216	-.129	-.145	-.182	-.031	-.091	-.166
11. Coop. Vocab.	-.318*	-.174	-.177	-.213	-.115	-.184	-.244
12. Coop. Gram.	-.422**	.260	-.352*	-.330*	-.168	-.243	-.358**
13. Coop. Total	-.340*	-.198	-.234	-.254	-.114	-.187	-.272*
14. Spk. Mimic	-.162	.052	-.046	.096	-.030	-.111	-.196
15. Spk. Snds.	-.088	.057	-.037	.114	-.063	-.087	-.091
16. Spk. Glbl.	-.121	-.026	-.158	-.007	-.054	-.133	-.102
17. Spk. Pt. Q.	-.157	.104	-.081	-.008	-.113	-.044	-.215
18. Spk. Pt. Ds.	-.133	-.058	-.274*	-.054	-.153	-.172	-.200
19. Spk. Pt. Sq.	-.010	.011	-.207	-.028	.072	-.045	-.093
20. Spk. Total	-.169	.047	-.160	.108	-.030	-.140	-.167
21. Wrt. Fl-in	-.199	-.056	-.203	-.125	-.054	-.066	-.239
22. Wrt. Sent.	-.291*	-.233	-.261	-.168	-.141	-.210	-.404**
23. Wrt. Par.	-.093	-.079	-.086	-.036	.031	-.032	-.168
24. Wrt. Total	-.237	-.153	-.231	-.144	-.082	-.149	-.336*

At 50 df, $^{*}r = .273$ $p < .05$, $^{**}r = .354$ $p < .01$.

TABLE 55

CORRELATIONS BETWEEN TEACHER PROFICIENCY & CLASS ACHIEVEMENT

GERMAN TEACHER PROFICIENCY TEST SCORES (N37)

Class Means	Listen	Speak	Read	Write	Cult	Ling.	Prof.Prep.
1. LB Lsn.(mid)	-.115	-.016	-.128	.095	.043	.137	.180
2. LB Rd. (mid)	-.267	-.177	-.146	-.021	.085	.069	.093
3. Lsn. Dis: 1	-.122	-.095	-.264	.057	.173	.236	.164
4. Lsn. Dis: 2	.095	.214	-.033	.068	-.008	.101	.121
5. Lsn. Dis: 3	.093	.050	-.039	.149	-.033	.221	.172
6. Lsn. Dis: 4	.172	.166	-.011	.141	.090	.171	.211
7. Lsn. Dis: T	.152	.146	-.002	.160	.037	.183	.234
8. LA Listen	.130	.159	.118	.121	-.040	.010	.049
9. LA Read	.171	.173	.141	.176	-.072	.023	.112
10. Coop. Read	-.088	-.033	-.032	-.006	-.120	-.039	.056
11. Coop: Vocab.	-.081	-.068	-.009	.004	-.127	-.036	.032
12. Coop. Gram.	-.056	.035	.046	.064	-.161	.015	.040
13. Coop. Total	-.082	-.029	-.007	.142	-.137	-.026	.047
14. Spk. Mimic	.299	.380*	.365*	.230	.005	.047	-.004
15. Spk. Snds.	.206	.170	.097	.052	-.155	.108	.012
16. Spk. Glbl.	.160	.272	.262	.029	-.063	-.035	-.068
17. Spk. Pt. Q.	.073	.161	.196	.136	-.187	.036	-.025
18. Spk. Pt. Des.	.161	.164	.048	.027	-.268	.002	.020
19. Spk. Pt. Seq.	.115	.061	.049	-.029	-.197	-.100	.030
20. Spk. Total	.253	.259	.228	.120	-.190	-.003	.0001
21. Wrt. Fl-in	-.036	.137	.108	-.043	-.259	-.053	-.070
22. Wrt. Sent.	.016	.127	.102	.128	-.445**	-.233	-.159
23. Wrt. Par.	.063	.159	.110	.107	-.180	-.070	.051
24. Wrt. Ttl.	.011	.097	.090	-.039	-.346*	-.092	.075

At 35 df, *r = .325 p. $<$ .05, **r = .418 p. $<$ .01.

The almost complete lack of correlation between teacher proficiency and class mean achievement scores--surprising the investigators who did the analysis four times, carefully checking the computer input--necessitated further refinement. Those few singificant correlations which occur in Tables 54 and 55 can themselves possibly be attributed to chance.

To investigate the possibility of non-linear relationships, both German and French teachers were broken into three groups based upon the sum of their Listening, Speaking, Reading and Writing *Proficiency Tests*. These groups were (1) the ten *most* proficient teachers, (2) the ten *least* proficient teachers and (3) the balance or *middle* group (French N=35, German N=17).

The correlation program was re-run separately for these three groups. Data is shown in Tables 56 through 60. Again, no significant relationships were found in great numbers. The reader's attention should be drawn (1) to Table 56 where classes taught by the *least* proficient French teachers often scored higher--sometimes markedly--on achievement tests; (2) to the lack of significant intercorrelations on the *Proficiency Test* sub-tests on Table 57 among both high and low French groups (in contrast with the highly significant intercorrelations for the whole population illustrated in Table 111, Appendix G) and (3) on Table 58 to the negative relationship between the low French teacher group's *Reading* score and class achievement in Listening Discrimination, two reading tests and the *Speaking Test*.

GAIN SCORES

Two achievement measures were administered to all experimental students in September and May. While students were frustrated during the pre-experimental testing, this did permit the computation of class mean gain after one year of modern foreign language instruction. Data on class gains and the relationship to the teachers scores on the *MLA Teacher Proficiency Test* are shown in Table 61.

Of interest is the low average gain achieved over a one-year period on the *Listening Test* in experimental populations in which approximately eighty percent of the students are in Functional Skills approaches to language learning (FSM and FSG).

TABLE 56

MEAN SCORES OF FRENCH TEACHER GROUPS AND THEIR CLASSES

	Most Proficient Teachers (N 10)		Middle Group (N 20)		Least Proficient Teachers (N 10)	
Tchrs' scores	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
1. MLA Listen	51.1	3.45	38.6	5.09	31.4	3.45
2. MLA Speak	81.7	4.73	73.6	7.24	57.7	6.86
3. MLA Read	50.1	3.70	45.6	6.58	35.7	3.57
4. MLA Write	50.9	3.48	45.2	5.71	35.4	6.26
5. MLA Ling.	55.4	5.43	47.8	6.02	41.4	4.82
6. MLA Cult.	58.8	4.67	50.1	5.52	39.8	6.86
7. MLA Prof.Pr.	70.5	4.68	64.6	6.16	55.0	8.01
Class Means, Post-Experiment tests						
8. LB Lsn.(mid)	12.33	1.3	12.51	1.68	12.64	3.05
9. LB Read(mid)	13.75	.82	13.88	1.05	13.86	2.22
10. List. Dis.	42.75	3.39	45.35	3.63	41.49	5.92
11. LA Listen	14.24	1.47	14.93	3.28	13.61	3.14
12. LA Read	14.96	1.24	15.24	3.59	16.91	3.06
13. Cooperative	35.02	6.90	39.21	10.08	47.90	11.11
14. LA Speak[1]	24.24	11.03	26.36	10.18	29.29	14.68
15. LA Write[1]	14.78	8.30	19.65	12.71	26.47	16.81

[1] 10% random sample

TABLE 57

INTERCORRELATIONS ON TEACHER PROFICIENCY TESTS

FRENCH, Most Proficient Group, N=10

	Speak	Read	Write	Ling.	Cult.	Prof.Prep.
1. Listen	-.205	-.662*	-.139	-.580	-.576	.331
2. Speak		-.089	-.034	.464	-.134	-.121
3. Read			.596	.231	.377	-.527
4. Write				.219	-.053	.184
5. Ling.					.513	-.076
6. Cult.						.280

FRENCH, Least Proficient Group, N=10

	Speak	Read	Write	Ling.	Cult.	Prof.Prep.
1. Listen	.273	.307	-.087	.596	.648*	.523
2. Speak		-.163	.349	.543	.649*	.651*
3. Read			-.045	.145	-.252	.256
4. Write				.434	-.055	.058
5. Ling.					.551	.755*
6. Cult.						.598

*r = .632 $p. < .05$.

TABLE 58

CORRELATIONS BETWEEN FRENCH TEACHERS' PROFICIENCY TEST SCORES AND THE MEAN ACHIEVEMENT OF THEIR CLASSES

High Group N-10; Middle Group N-32; Low Group N-10

Tchr. Prof. Test		LB List	LB Read	List Dis.	LA List	LA Read	Coop.	LA Speak	LA Write
1. Listen	H	-.186	-.092	-.280	-.422	.067	.057	-.056	.122
	L	.311	.345	.052	.339	.336	.360	.136	.231
	M	.063	-.221	-.144	.303	.020	-.164	.023	-.038
2. Speak	H	-.471	-.089	.133	-.649*	-.501	.019	-.083	-.340
	L	.119	.108	.494	.224	.184	.070	.235	-.213
	M	.204	-.002	.080	.325	.122	.107	.213	.190
3. Read	H	.379	.269	-.024	.426	.426	.140	.172	.173
	L	-.516	-.645*	-.785**	.508	-.683*	-.612	-.680*	-.512
	M	.103	-.023	-.113	.272	.235	.279	.082	.090
4. Write	H	.054	-.012	-.211	.034	.458	.073	-.007	.121
	L	.102	.009	.042	-.001	-.298	-.333	.075	.029
	M	.164	.082	-.042	.372*	.150	.106	.181	.157
5. Ling.	H	-.152	-.183	-.147	-.296	-.043	.311	-.169	.118
	L	.428	.305	.251	.489	.189	.180	.217	-.041
	M	.165	.112	.221	.470**	.247	.106	-.080	.151
6. Cult.	H	.358	.100	.115	.354	.345	.126	.556	.599
	L	.294	.389	.429	.435	.610	.606	.222	.170
	M	.008	.100	.233	.273	.119	-.045	-.173	-.043
7. Prep.	H	-.333	-.388	.283	.038	.030	.082	-.155	-.261
	L	.149	.073	.119	.215	.117	.029	-.059	-.366
	M	.276	.292	.198	.336	.148	.055	.021	-.057

H,L: at 8 df, $r > .632$ $p. < .05$, $r = .765$ $p. < .01$.

Mid: at 30 df, $r > .349$ $p. < .05$, $r = .449$ $p. < .01$.

TABLE 59

MEAN SCORES OF GERMAN TEACHER GROUPS AND THEIR CLASSES

	Most Proficient Teachers (N 10)		Middle Group (N 17)		Least Proficient Teachers (N 10)	
Tchrs' scores	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
1. MLA Listen	49.4	4.33	40.6	5.68	31.5	2.52
2. MLA Speak	105.3	8.28	86.0	7.86	72.3	8.29
3. MLA Read	64.8	12.36	50.0	4.96	37.3	6.10
4. MLA Write	62.3	21.93	56.0	6.58	38.2	6.11
5. MLA Ling.	52.7	19.68	51.6	6.77	45.3	7.75
6. MLA Cult.	52.0	18.87	53.6	7.15	45.4	4.73
7. MLA Prof.Pr.	58.6	21.07	63.7	7.13	58.1	5.41
Class Means, Post-Experiment tests						
8. LB Lsn.(mid)	12.09	1.19	12.45	1.40	12.70	1.76
9. LB Read(mid)	12.77	1.15	13.74	1.09	13.43	.99
10. List. Dis.	41.81	2.40	40.55	3.43	39.94	4.40
11. LA Listen	15.69	2.61	15.66	2.59	14.73	2.72
12. LA Read	14.02	5.41	15.01	1.70	14.72	1.94
13. Cooperative	46.31	13.67	45.08	10.35	46.39	9.89
14. LA Speak[1]	27.20	10.50	21.76	12.29	22.74	5.50
15. LA Write[1]	28.95	13.14	26.92	18.55	27.41	13.58

[1] 10% random sample

TABLE 60

CORRELATIONS BETWEEN GERMAN TEACHERS' PROFICIENCY TEST SCORES AND THE MEAN ACHIEVEMENT OF THEIR CLASSES

High Group N-10; Middle Group N-17; Low Group N-10

Tchr. Prof. Test		LB List	LB Read	List Dis	LA List	LA Read	Coop.	LA Speak	LA Write
	H	.352	-.402	.338	.349	.228	-.068	.163	-.038
1. Listen	L	-.107	.097	.329	-.016	.019	-.109	-.042	-.261
	M	-.119	-.094	-.057	-.058	.056	-.211	-.363	-.311
	H	.303	-.138	-.323	.306	-.028	-.016	-.059	-.039
2. Speak	L	.474	.355	.532	.119	.392	-.077	-.014	.175
	M	-.058	-.021	-.147	.095	-.113	-.130	-.211	.167
	H	-.160	-.146	-.495	.059	.150	-.073	.245	.437
3. Read	L	.285	.226	-.271	-.035	.035	-.185	-.516	-.367
	M	-.096	.327	-.042	.049	.301	.182	.267	.196
	H	.358	-.028	.590	-.021	.116	.019	-.060	-.289
4. Write	L	.537	.587	-.110	.674*	.075	-.027	-.214	.114
	M	.069	.144	-.212	-.124	.162	.079	-.036	-.072
	H	.313	-.035	.477	.029	.195	.004	.079	-.184
5. Cult.	L	.519	.510	-.270	.387	-.202	-.316	-.232	-.348
	M	.362	.223	-.249	-.394	-.261	-.247	-.471	-.532*
	H	.162	-.091	.538	-.080	.117	-.071	.028	-.258
6. Ling.	L	.292	.232	-.504	.062	-.204	-.419	-.807**	-.334
	M	.252	.303	.190	.032	.092	.187	-.050	-.008
	H	.177	-.003	.579	-.081	.005	-.022	-.094	-.351
7. Prep.	L	.594	.303	-.180	.452	.041	-.144	-.010	-.081
	M	.090	-.040	.236	-.038	-.248	.129	-.232	.139

H,L: for 8 df, $r > .632$ $p. < .05$, $r = .765$ $p. < .01$.

Mid: for 15 df, $r > .482$ $p. < .05$, $r = .606$ $p. < .01$.

TABLE 61

CORRELATION OF TEACHER PROFICIENCY AND CLASS GAIN

Gain Score by class	LA Listening		Cooperative		Correlation
	Mean	S.D.	Mean	S.D.	
1. French, N=59	5.07	3.36	16.31	8.86	.468**
2. German, N=42	4.49	2.82	18.48	11.63	.646**

MLA Teacher Proficiency Tests

	Listen	Speak	Read	Write	Ling.	Cult.	Prof.Prep.
	Correlation Coefficients						
French:							
LA Lsn.	.130	.189	.187	.217	.267	.251	.234
Coop.	.164	-.035	-.003	-.130	-.017	.102	.129
German:							
LA Lsn.	-.041	.013	.130	.110	-.055	-.164	-.180
Coop.	-.002	.060	.120	.051	-.036	-.092	-.001

at 50 df, $r = .273$ $p. < .05$, $r = .354$ $p. < .01$.

at 40 df, $r = .304$ $p. < .05$, $r = .393$ $p. < .01$.

In summary, a comparison was made between the MLA Teacher Proficiency Test scores in all seven areas of eighty-nine French and German teachers and the mean of scores and mean class gain achieved by the students in their classes on two mid-year and six end-of-year achievement tests. No significant relationship was found to exist.

STUDENT PERFORMANCE AND THE SEX OF THE TEACHER

An examination was made of student performance by sex on the final French and German LA Listening, LA Reading and Cooperative Tests. This performance was matched with the sex of the teacher. The following results were obtained when comparing the achievement of students of the same sex to the sex of the teacher.

TABLE 62

STUDENT PERFORMANCE AND SEX OF TEACHER

Boys

	LA Listening			LA Reading		Cooperative		
French	Mean	S.D.		Mean	S.D.	Mean	S.D.	
Men Teachers	13.41	4.92		15.08	5.05	37.27	12.61	
Women Teachers	14.06	6.11		14.87	4.74	37.76	14.76	
German								
Men Teachers	14.60	4.97	$p < .05$	14.42	4.37	43.33	13.90	$p < .05$
Women Teachers	15.55	5.20		14.77	4.37	45.88	16.04	

Girls

	LA Listening		LA Reading		Cooperative	
French	Mean	S.D.	Mean	S.D.	Mean	S.D.
Men Teachers	15.17	5.64	16.41	5.33	42.07	15.67
Women Teachers	15.07	5.55	16.49	4.87	43.23	15.49
German						
Men Teachers	15.98	5.56	15.98	7.37	48.96	15.75
Women Teachers	16.96	5.79	15.99	4.34	48.84	14.40

Using levels of significance for two-tailed tests, there were no significant differences in achievement on LA Listening, LA Reading and Cooperative final tests among boys taught French by men and boys taught French by women. The same measures administered to girls also yielded no significant differences in performance of girls taught French by men when compared to girls taught French by women.

When comparing German students, boys taught by women performed significantly higher on LA Listening and Cooperative final tests than boys taught by men. No significant difference was found in LA Reading achievement among the two groups. A comparison of performance on the three measures of girls taught German by men to girls taught German by women yielded no significant differences.

In summary, among French and German students, girls performed significantly higher than boys even when sex of student was matched to sex of teacher. When boys were matched with men and women teachers, significance appeared only in German LA Listening and Cooperative final tests favoring the group taught by women. No significant difference in performance was found among girls studying either French or German when matched with the sex of the teacher.

SECTION IV: DISCUSSION

Educational research is a "two-edged sword." Small scale, tightly controlled research is open to the criticism that it may not be transferable or sufficiently generalizable. On the other hand, any attempt to establish careful research in a "real life" situation presents problems of maintaining close and rigorous controls. The research detailed in this report is of the second type. The authors feel that it represents an attempt to replicate previous studies in a broader context with as careful controls as could reasonably and realistically be applied without seriously distorting the reality of the school environment. In the transfer of this research in foreign language methodology to the context of many varied schools, something happens to prevent the duplication of results of other studies.

A number of facets of the study, both in its conduct and in its findings, deserve some amplification or comment. Among these are (1) the role of language, (2) the role of sex, (3) the administration of language laboratories in the experimental schools as well as (4) the impact of the Project upon those involved in it.

THE ROLE OF LANGUAGE

Early in the course of the experiment it became clear that there existed differences in the two student populations, French and German. In earlier portions of this report it was pointed out that there was no initial difference in "foreign language aptitude" as measured by the Modern Language Aptitude Test. There was a slight initial difference in intelligence in favor of German students (F=113, G=115.1).

It has been widely observed for many years that more females elect to study French while males elect German. This was true in the experimental population where at the beginning of the study, initial measures were obtained on 2,634 students. These were divided by sex:

French (1,525 students)	Male	44.4%
	Female	55.6%
German (1,109 students)	Male	61.8%
	Female	38.2%

Of interest is that overall, more males were included in the initial Project population sample, 51.7% male as opposed to 48.3% female.

Throughout the analyses of the experimental data, a much higher incidence of reaching statistical levels of probability was found among the French population. For example, of one hundred and sixty-nine contrasts reported on tables related to Section III, Part 1, LANGUAGE LABORATORIES AND TEACHING STRATEGIES, French classes reached significant levels of probability on fifty-nine but German classes on only thirty-five. If the hypothesis is posited that French and German classes should have reached levels of significance at an equal level, a simple Chi-Square can be computed to test the variation between the two languages. At one degree of freedom, Chi-Square equals 6.12, significant beyond the .02 level but not reaching .01. This significant difference in the number of significant results between French and German classes clearly holds implication for the generalization of research results and the transfer of conclusions across languages.

THE ROLE OF SEX

Throughout the study sex seems to have played a major role. Highly significant differences between male and female students occurred on the pre-experimental Student Opinion Scale and throughout the remainder of the study on almost all measures.

While many published reports and studies have recognized differences in achievement between males and females, few have permitted this difference to influence the establishment of separate norms for males and females. For example, published standardization data for a number of measures such as the Pimsleur Language Aptitude Battery and the Modern Language Aptitude Test report consistently higher scores for females. A number of recent studies have tended to minimize differences in achievement by sex. For example, in a recently reported study, Carroll (1967, p. 139) comments:

> ...that there are no significant differences in foreign language listening test scores between the males and females in our samples. This tends to discredit the popular idea that women are better language learners....

The known high intercorrelations between language skills may permit investigation of only one skill, however, it would have been interesting if this important and significant study on the proficiency of college seniors had reported if differences existed between females and males on skills other than listening comprehension.

In the body of this report, the least incidence of significant differences by sex occurred on the listening tests. Tables 34 through 38 indicate highly significant differences in achievement by sex. In the detailed tables reporting the multivariate analyses of the effect of teaching strategies and language laboratory systems (Section III, Part 1 and Appendix D) sex differences are reported on a great many measures and contrasts. This data would tend to credit the supposition that females are better language learners at the secondary school level.

While much has been said of the successful instructional programs in foreign languages found in European schools in regard to longer sequences of study, scant mention is made of the influence that separation of sexes may play in such a situation.

ADMINISTRATION OF LANGUAGE LABORATORY EQUIPMENT

The combined total of Project classes using language laboratories was seventy-two. Of thirty-four language labs examined, twenty were used by the audio-active groups and fourteen by the audio-active-record groups.

Dates of laboratory installment varied, with the majority placed into schools in the period 1960-62. The dates of installation of fourteen laboratories was not known by the participating teachers.

Year of Installation	Number
1959	1
1960	6
1961	6
1962	5
1963	---
1964	1
1965	1
Unknown	14

Since the research was an attempt to assess the effectiveness of the language laboratory as it really exists in schools in the field, no funds or personnel were allocated for special maintenance of the laboratory systems. The upkeep and repair of the laboratory had to be within the framework of the existing school system although Field Consultants did provide advice and stress urgency to school administrators from time to time. The experiment, however, was a reflection of what actually happens rather than the idealized situation.

Of the thirty-four language laboratories, twenty-six had no maintenance contract with the installer. Field Observer's comments indicated inoperative conditions were most frequently due to headset, wiring, and recording malfunctions. Repair or replacement of this equipment ranged from one to four weeks. In several instances there was continuous malfunction of equipment. In one case where recording facilities failed early in the experiment but the audio-active portion remained operative, the class strategy was reassigned.

It cannot be supposed with accuracy that the breakdown of equipment was totally due to the lack of teacher familiarity with the equipment. Twenty-eight laboratory facilities provided initial training for teachers in the operation of equipment. However, in twenty-six cases there was no follow-up or additional training provided.

Seventeen laboratories provided no qualified laboratory technicians to maintain the equipment. Personnel in charge of language laboratory maintenance varied. Five were foreign language Department Heads, three were custodians, two were Audio-Visual Directors, two were student assistants, two also were Electric Shop teachers, and one each were the Principal and the school electrician. Twenty-nine labs of the thirty-four were not serviced periodically. A repairman was called when a malfunction occurred.

THE IMPACT OF THE PROJECT

It is the opinion of the investigators that extensive involvement of teachers and school administrators had an effect on the foreign language program of the school. Classroom teachers, department heads, supervisors and curriculum specialists were made aware of existing and projected research. Teachers met and learned from prominent foreign language educators. The four teachers' conferences provided a great deal of mutual interchange of ideas and views.

On the more concrete side, schools were required to move from twenty-eight different texts to seven basic series. All schools purchased tape programs to accompany the text when required. For the first time teachers became aware of new prognostic and achievement tests which led to their use in non-Project classes. The fact that every classroom teacher involved in the Project was expected to have and use a classroom tape recorder daily influenced other classes and other teachers.

Prior to participation in the Project, many schools only scheduled foreign language classes to use the language laboratory one day each week. The insistance of the Project on two periods per week as a minimal program for experimental classes necessitated the readjustment of the entire laboratory schedule. This resulted in a subsequent increase in participation for other classes in the school.

Overall, there was an increase in professional awareness and commitment on the part of the teachers involved with an attendant appreciation for both the problems and potential of educational research.

SECTION V: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The following conclusions and recommendations do not often coincide with a number of smaller-scale, similar experiments cited in the earlier review of the research or more recently reported to the profession.

CONCLUSIONS

Objective 1. Comparative effectiveness of the three teaching strategies:

A. At the end of one year of instruction in French and German, "Traditional" classes significantly exceeded "Functional Skills" and "Functional-Skills+Grammar" classes on the 1939 and 1941 Cooperative French/German Test.

B. "Traditional" classes did significantly better than both functional skills strategies on the final MLA Cooperative Classroom Reading Test and as well as the other approaches on the Listening Test.

C. "Functional-Skills+Grammar" classes achieved significantly better than "Functional Skills" classes in two different measures of reading and a vocabulary test but only as well as FSM classes on other measures, including the "Grammar" section of the Cooperative French/German Tests.

D. In a ten-percent sample of the experimental population (French N 205, German N 138) the "Traditional" classes did significantly better than "Functional Skills" classes on the MLA Cooperative Classroom Writing Test.

E. In the same sample, "Traditional" classes did as well as "Functional Skills" classes on the MLA Cooperative Classroom Speaking Tests.

Objective 2. Comparative effectiveness of the three language laboratory systems:

A. The language laboratory systems employed had no measureable effect on achievement on tests of listening, reading, vocabulary or grammar after one year of French or German instruction.

B. In a random ten-percent sample of each class not employing a language laboratory but equipped with classroom tape recorders, "Traditional" classes did better than "Functional Skills" classes on the MLA Cooperative Classroom Speaking Test.

C. Laboratory type had no effect on Speaking Test scores.

Objective 3. Determine optimum strategy-system combination:

--None was detected in the experimental population.

Objective 4. To determine the best predictors of foreign language achievement:

A. There were significant relationships between intelligence, aptitude, attitude and student marks in other subjects and foreign language achievement.

B. The most significant combination of predictors were the Modern Language Aptitude Test, a foreign language Listening Test and the Language I.Q. for both languages in grades nine through eleven.

Objective 5. To determine the relationship among the four skills: listening, speaking, reading, writing.

--All skills were highly interrelated and also correlated significantly with listening discrimination and expressions of student attitude and interest.

Objective 6. To determine whether strategy and system relate to student ability:

A. Students achieved most in the "Traditional" strategy despite individual differences in ability.

B. Student achievement reflected ability rather than strategy.

C. Females had a significantly higher foreign language aptitude than males.

Objective 7: To identify and compare student attitude toward language learning.

A. Student expectations and orientation were still overwhelmingly traditional. Two-thirds of all students studied a foreign language for college entrance requirements. Ninety percent of a random sample (N 300) had an initial "traditional" expectation for their foreign language study.

B. Students anticipated liking foreign language study and became less favorably inclined as the school year progressed. The rate of decline was the same during the first year regardless of the language studied or the strategy employed.

C. Females had a more favorable attitude throughout a year of foreign language instruction than males. Males studying German had a somewhat better attitude toward foreign language study than males studying French.

D. Initial attitude was not related to later achievement.

Objective 8. To determine levels of functional mastery:

A. Many students achieved meaningful scores on pre-instructional foreign language tests. This implies no "zero" starting point and makes suspect research based solely on final testing.

B. Authors and publishers of "Functional Skills" materials imply too high an expectation of progress through their programs.

Other Conclusions:

A. Females achieved better in foreign languages than males; on almost all measures, in all strategies, and in all grades included in the experimental population.

B. Project teachers were well prepared by current standards, averaging ten years of teaching experience and forty-five semester hours of graduate education.

C. Assessment of teacher proficiency by competent observers correlated highly with teacher scores on the MLA Proficiency Test for Teachers and Advanced Students. They did not correlate with teacher self-ratings.

D. Sex of the teacher had little effect on student achievement.

E. There was no significant relationship between scores of eighty-nine French and German teachers on all seven parts of the Teacher Proficiency Tests and the achievement scores, both gross and gain, of their classes in foreign language skills.

RECOMMENDATIONS

In the light of the conclusions that must be drawn from the data, the reporters of the research make the following recommendations to the profession:

1. Since the results do not replicate other smaller-scale studies. . .

   A. There should be established a center for the continuing long-term study of modern foreign language instruction within the milieu of the "real school" environment, especially concerning itself with the transfer and replication of localized experiments into large scale, curriculum-changing research;

   B. That this experiment be immediately replicated; (already undertaken as part of Project 7-0133);

   C. That a similar but more precise experiment be undertaken involving the teaching of Spanish;

   D. That future research include more precise definitions of "traditional teacher" and "audio-lingual teacher" based not only upon texts employed and stated objectives but on detailed physical and verbal interaction analyses.

   E. That experiments be undertaken to determine if co-educational classes inhibit second language learning by females.

2. Experimental research design in foreign languages should always include extensive pre-testing, including skills tests, to permit more meaningful statistical analyses.

3. Since teacher scores on the MLA Teacher Proficiency Tests had little to do with the class achievement. . .

   A. That research be undertaken to adequately determine the relationship between various levels of teacher proficiency and student achievement.

   B. That the MLA Teacher Proficiency Tests not be used as a major factor in the certification of teachers until more research is accomplished.

4. Teachers should not attempt to "enrich" functional skills classes with grammatical explanations and generalizations in Level I.

5. A foreign language *Listening Comprehension* test should be made an integral part of foreign language aptitude tests.

6. A more careful and sound policy of language laboratory administration and maintenance be immediately initiated by responsible school authorities.

7. Separate norms should be reported for males and females on standardized modern foreign language achievement tests.

8. That secondary schools should provide a classroom tape recorder for each foreign language teacher for daily use before equipping special electronic classrooms.

9. That language laboratories be equipped with student recording facilities for testing purposes and individualized study rather than for frequent recording of regular drill sessions.

10. That detailed studies be undertaken of the role of motivation in foreign language learning by secondary school students with emphasis on identifying possible points of departure for behaviorally oriented research.

11. That the foreign language education profession become more directly aware of the implications of research on the individual classroom at all levels.

In conclusion, the study of the relative effectiveness of various teaching strategies and language laboratory systems seems to point out that curriuclum inovations in foreign languages have been widespread but that this impact may have been more superficial than the profession had hoped. Certainly, more study is needed to advance knowledge of the second language learning process in the realistic setting of the public school.

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APPENDIX A

EXPERIMENTAL CLASSES AND SCHOOLS

FIRST YEAR TEACHERS, FRENCH - 1965-66

Teacher	School	School District
Yoder, John A.	L. E. Dieruff	Allentown City
Kemmler, June	Whitehall Jr.	Baldwin-Whitehall
Bertoline, Veronica F.	Bethel Park	Bethel Park
O'Leary, H. Ola*	Nitschmann Jr.	Bethlehem Area
Maxwell, Evan A.	Boyertown Area	Boyertown Area
Taglianetti, Marie C.	Central Bucks Sr.	Central Bucks
Dickey, Kathleen	Wm. Tennent	Centennial Joint
Strange, Marian*	Churchill Area	Churchill Area
Searles, Milton J.	S. H. Scott Sr.	Coatesville Area
Cravens, Gertrude*	Columbia Borough	Columbia Borough
Fetterman, Marguerite*	Cumberland Valley	Cumberland Valley
Gromling, Roberta	Cumberland Valley	Cumberland Valley
Walker, Charles	Darby Township	Darby Township
Kunz, Sandra*	Easton Jr.	Easton Area Joint
Schneck, Dale A.	Easton Area	Easton Area Joint
Schaadt, Woodrow K.	Emmaus	East Penn Union
Blessing, Joanne*	East Pennsboro	East Pennsboro Area
Maguire, John	Eddystone	Eddystone Borough
Young, Karen	Elizabeth-Forward	Elizabeth-Forward
Kruczek, Walter L.	Fox Chapel	Fox Chapel Area
Yauger, Virginia*	German Twp. Jr. Sr.	German Township
Kiss, Lucile*	Hampton Twp. Jr. Sr.	Hampton Township
Esbenshade, Dorothy K.	Wm. Penn	Harrisburg
Timmins, Marie A.*	John Harris	Harrisburg
Foster, Bernice	Hatboro-Horsham Sr.	Hatboro-Horsham
Grant, Joanne*	Haverford	Haverford
Roseman, Rita	Hellertown-Lwr. Scn.	Hellertown-Lwr. Scn.
Regester, Robert L.	Interboro	Interboro
Lepore, Joseph D.	Kingston	Kingston Borough
Snyder, Kenneth H.	Lampeter-Strasburg	Lampeter-Strasburg
Hauser, Carol A.	Methacton Jr. Sr.	Lower Providence-Wor.
Seminara, Anthony	Media	Media Borough
Yancy, Mary	Middletown Area	Middletown Area
McCartney, Judy Lee	Mt. Lebanon	Mt. Lebanon
Edsall, Geraldine*	Mt. Penn-Lwr. Alsace	Mt. Penn-Lwr. Alsace
Mesko, Joan	Nazareth Area Sr.	Nazareth Area
Myers, Blanche*	New Cumberland Jt.	New Cumberland Jt.
McKendrick, Helen*	Rittenhouse Jr.	Norristown Borough
Kline, Eleanor	No. Allegheny Sr.	No. Allegheny
Louthan, Mary Louise*	North Hills Joint	North Hills Joint
McMichael, Margaret*	Great Valley Sr.	Paoli Area
Bedford, Dorothy	Pen Argyl Area	Pen Argyl Area
Barnett, Edith*	Central	Philadelphia
Clinchard, Johanna*	Lincoln	Philadelphia
Cunningham, Kathryn*	Bartram	Philadelphia
Forowa, Natalie	Olney	Philadelphia
Torres, Raul	Washington	Philadelphia
Waldbaum, Minerva*	High School for Girls	Philadelphia

Price, Jean	Peabody	Pittsburgh
Ries, Alice*	Taylor Allderdice	Pittsburgh
Pettigrew, Mildred*	Pottstown No. Jr.	Pottstown Borough
Smoker, Richard	Central Jr.	Pottstown Borough
Hain, Dr. Charles	Southwest Jr.	Reading
Bell, Doris*	Ridley Park	Ridley Park
Peregrim, Michael	Central	Scranton
Bruno, Robert P.	Snowden Twp. Jr. Sr.	Snowden Township
Amicone, Yolanda	Stowe Jr. Sr.	Sto-Rox
Wray, Miriam*	Beverly Hills Jr.	Upper Darby Twp.
Kaczorowski, Daniel J.	W. Allegheny Sr.	West Allegheny Jt.
Marks, Thelma*	Cedar Cliff	West Shore Joint
Fisher, Nancy*	Wilson Joint	Wilson Joint

* Mrs.

FIRST YEAR TEACHERS, GERMAN - 1965-66

Teacher	School	School District
Kruger, David B.	Annville-Cleona	Annville-Cleona
Kern, Sam	Baldwin Sr.	Baldwin-Whitehall
Doebel, Marilyn L.	Bethel Park	Bethel Park
Stutzman, Herman	Blue Mountain	Blue Mountain
Lysinger, Wilhelmine*	Boyertown Area	Boyertown Area
Barnard, Eleanor Jasch*	Wm. Tennent	Centennial Joint
Oettel, Mary E.	Wm. Tennent	Centennial Joint
Voltz, Hedwig M.*	Central Bucks	Central Bucks
Schenck, Clark B. Jr.	Cumberland Valley	Cumberland Valley
Hollinger, C. Arthur	Donegal	Donegal Union
Williams, Mary Jane*	Elizabeth-Forward	Elizabeth-Forward
Gueldner, Ingeborg	Ephrata Union	Ephrata Union
Lutz, Margaret L.	Fox Chapel	Fox Chapel Area
Budahazi, Henry	Hampton Township	Hampton Township
Brunner, William J.	Wm. Penn	Harrisburg
Loy, Erma M.	John Harris	Harrisburg
Schmid, Maria*	Hatboro-Horsham	Hatboro-Horsham
Weis, Loretta E.	Kingston	Kingston Borough
Bond, Richard C.	Kutztown Jr.	Kutztown Area
Heck, Larry G.	Lebanon	Lebanon
Oelschlager, Kenneth	Methacton Jr. Sr.	Lowr.-Prov.-Wor.
Schroeder, Margaret M.	Middletown Area	Middletown Area
Steene, Walter A.	Morrisville	Morrisville
Oesterich, Edward N.	Mt. Lebanon	Mt. Lebanon
Wollenhaupt, Wilbert	Muhlenburg Twp.	Muhlenburg Twp.
McGonigle, Ruth*	Nazareth Area Sr.	Nazareth Area
Clark, Polly	Palisades Jr. Sr.	Palisades Joint
Wolfe, Marie P.	Conestoga Sr.	Paoli Area
Kleinschmidt, Lynnea	Pen Argyl Area	Pen Argyl Area
Santner, Joseph G.	Washington	Philadelphia
Shuster, Mally*	Central	Philadelphia
Wickel, Georgiana*	High School for Girls	Philadelphia
Wunner, Louise*	Olney	Philadelphia
Hardenstine, Ruth*	Pine Grove Area	Pine Grove Area
Gordon, Fannetta*	Taylor Allderdice	Pittsburgh
Thomas, Marjorie*	Peabody	Pittsburgh
Yenias, Anthony C.	South Hills	Pittsburgh
Schmidley, J. William	Plymouth-Whitemarsh	Plymouth-Whitemarsh
Repko, Richard A.	Spring-ford Sr.	Spring-ford Joint
Reeser, F. Robert	Schuylkill Valley	Schuylkill Valley
Singer, Robert B.	West Scranton	Scranton City
Saddic, Bonnie*	Drexel Hill Jr.	Upper Darby Twp.
Schlicher, Frederick E.	Upper Perkiomen Jt.	Upper Perkiomen Jt.

* Mrs.

APPENDIX B

TEACHERS' GUIDE MATERIALS

TRADITIONAL METHOD GERMAN

Specific classroom activities.

A. Overview.

1. Text: FOUNDATION COURSE IN GERMAN, by Homberger and Ebelke, published by D. C. Heath, Revised edition, 1954-or-A FIRST COURSE IN GERMAN, by Huebener and Newmark, D. C. Heath, second edition, 1964.
    - a. Teacher should have copy of textbook.
    - b. Each student should have his own copy of text.
2. No required equipment or materials.
3. Optional equipment and materials.
    - a. Tape recorder or record player.
    - b. Available realia -- Slides, film strips, newspapers, magazines, films and books.

B. Suggestions to the teacher.

1. Use of foreign language.
    - a. German may be used at teacher's discretion.
    - b. Grammar instruction must be given in English.
2. Introductory lessons, 1 to 7. (1-5 for 1st Course)
    - a. Approximately one third of daily class time to be used for oral practice.
    - b. After lesson 7, (5 in 1st Course) oral practice should be limited to approximately one fourth of time.
3. Pronunciation.
    - a. Sound system to be taught as presented in text.
4. Vocabulary.
    - a. Student to memorize vocabulary lists.
    - b. Student to memorize lists of idioms.
5. Grammar.
    - a. To be taught as suggested in textbook.
    - b. Teacher to supplement text where clarification or examples may be needed.
    - c. Student to memorize paradigms.
6. Reading selections.
    - a. Teacher to read aloud and explain difficult passages.
    - b. Selections to be repeated by class and assigned for home study.
    - c. Translation into English for clarification.
7. Writing.
    - a. Should begin in first lesson.
    - b. May take form of:
        - 1) Homework assigned from text.
        - 2) Classroom exercises, including blackboard work.
    - c. Translation into German.
8. Culture and civilization.
    - a. Selections dealing with culture and civilization to be used for outside reading and class discussion.
    - b. Pertinent realia may be used.
    - c. Time not to exceed one class period per week.

9. Homework.
    a. Exercises on material previously introduced.
    b. Material not previously introduced may be assigned for study.
10. Review.
    a. Daily review: teacher to use exercises provided in each lesson.
    b. General review: teacher to spend several class periods on each of the comprehensive review lessons, completing as many exercises as possible.
11. Testing may be of the following types:
    a. Dictation.
    b. Vocabulary and idiom quizzes.
    c. Translation.
    d. Reading comprehension (questions based on reading selection).
    e. Grammar.
        1) Multiple choice.
        2) Matching.
        3) Completion.
        4) Paradigms.
        5) Replacement and restructure.
        6) Translation.
12. Recommended grammar coverage.
    a. All grammar in Chapters 1 through 19 to be taught. (All grammar in text in 1st Course)
    b. Omit the following in Chapter 20. (Foundation Course only)
        1) Perfect participle as adjective.
        2) Adjective as noun.
        3) Infinitive of verb as noun.
    c. Omit chapters 21 through 25 and fourth review lesson. (Foundation Course only)

C. Recommended rate of coverage.
    1. At end of semester--9 to 10 lessons (13-15 for 1st Course)
    2. At end of year--10 to 20 lessons. (26-30 for 1st Course)

DO'S AND DON'TS

Do's

1. Begin reading and writing in the first week.
2. Analyze grammar in depth.
3. Give only tests requiring reading and writing.
4. Require student mastery of paradigms.

Don'ts

1. No systematic use of lab tapes or lab records.
2. No systematic use of native speakers in the classroom.

FUNCTIONAL SKILLS METHOD

GERMAN

Specific classroom activities

- A. Overview.
  - 1. Text: DEUTSCH: VERSTEHEN UND SPRECHEN, by Rehder, Thomas, Twaddell and O'Connor, published by Holt, Rinehart and Winston, 1962 - or - A-LM, LEVEL I, Harcourt, Brace and World, 1961.
    - a. Teacher to have copy of Teacher's Edition or Manual.
    - b. Each student to have his own copy of text.
  - 2. Required equipment and materials.
    - a. Language laboratory.
    - b. Tape recorder or record player.
    - c. Complete set of sequential lab tapes.
    - d. Student practice records for home use.
    - e. Tests for evaluation of listening and reading comprehension.
  - 3. Optional equipment and materials.
    - a. Set of flashcards or dialog posters.
    - b. Printed unit quizzes or test booklets.
    - c. Grading charts.
    - d. Songbooks with recordings.
    - e. Complete set of test tapes.
    - f. Teacher's cue cards.

- B. Suggestions to the teacher.
  - 1. Use of foreign language.
    - a. Essential for teacher to conduct class in German.
    - b. English to be used only when necessary for clarifying difficult points.
  - 2. Pronunciation.
    - a. Teacher's pronunciation to serve as model.
    - b. Teacher to spend an average of three to five minutes daily on pronunciation drills.
    - c. For detailed instructions see specific units of Teacher's Edition.
  - 3. Vocabulary.
    - a. Should be taught only within context of dialogs and drills.
    - b. Continuous review insured by subsequent reintroduction of vocabulary.
  - 4. Lab tapes.
    - a. Should be used daily for an average of one fourth of class period.
    - b. Should be used for reinforcing material previously introduced.
  - 5. Grammar.
    - a. Not to be taught, assigned or tested.
    - b. Teacher to answer promptly and briefly all questions concerning grammatical structures.

6. Reading.
    a. Should be introduced after Unit 4 (prereading phase), and include only material previously heard.
    b. Sequence should be from choral to individual response.
    c. No formal translation permitted.

7. Homework.
    a. During prereading phase, dialog memorization with aid of student practice records.
    b. After prereading phase, dialog memorization to continue, but now with printed text in addition to practice records.
    c. Refer to Teacher's Edition or Manual for further homework suggestions.
8. Writing.
    a. Should start at conclusion of prereading phase.
    b. Should always be based on previously learned dialogs and conversations.
    c. Refer to Teacher's Edition for further suggestions for written work.
9. Culture.
    a. Only everyday activities and situations (the anthropologist's "total culture") treated in text.
    b. Refinement culture.
        1) Not developed in text (except for folksong section of VERSTEHEN UND SPRECHEN)
        2) Brief commentary permitted when specific references appear in text.
10. Review.
    a. Calculated recurrence in text of vocabulary and structure.
    b. Use review sections after Units 5, 8, 10, 13, 15. (Recombination work in Units 4, 5, 6, 8,-14, A-LM)
11. Testing.
    a. Proportion of grade based on oral testing:
        1) Prereading phase - 100 per cent.
        2) After prereading - 50 per cent.
    b. Printed tests to be administered after Units 5, 10, 15 or when directed by Teacher's Edition.
    c. To supplement, teacher may use following types of tests:
        1) Dictation (only of previously learned material).
        2) Rejoinder and completion.
        3) Multiple choice.
        4) True-false.

C. Methodology.
    1. Dialog.
        a. Give oral model of dialog sentences.
        b. Dramatize sentences, using props, gestures, etc.
        c. Drill dialog by proceeding from choral, part-choral to individual.

- d. After several sentences have been learned, play that portion of practice record for class.
  - 1) Distribute records.
  - 2) Ask students to practice lines at home for 15 to 20 minutes.

2. Question-answer practice.
   - a. Present oral models.
   - b. Begin repetition by class, row and individual.
   - c. Perform in pairs.
3. Pattern practice.
   - a. Model pattern several times with first substitution item.
   - b. Have students imitate model.
   - c. Follow procedure (a, b) through all substitution items.
   - d. Have students close books and repeat drill as before.
4. Teaching games (See Teacher's Edition).
5. Conversations.
   - a. Read conversation once or twice to students who follow it in their texts.
   - b. See Teacher's Edition for procedure and for extending conversations.
6. Supplement (Additional words and expressions listed in certain units, usually in paradigm form, but not necessarily incorporated in dialogs).
   - a. Teach by repetition.
   - b. Drill by question-answer.
7. Tapes.
   - a. In the laboratory.
     - 1) Two 25-minute periods per week.
     - 2) Student must not record. (word "not" omitted for Audio-Record classes)
     - 3) Do not use dialogs.
     - 4) Supervise all drill (See Teacher's Edition or Manual for detailed instructions).
     - 5) Supplementary lab drill for individual students at discretion of teacher.
   - b. In the classroom.
     - 1) Average of one fourth of total weekly instruction time.
     - 2) For reinforcement of previously introduced material.

D. Recommended minimum rate of coverage.
   1. At end of semester - 5 units (4-5 A-LM).
   2. At end of year - 10 units (9 A-LM).

FSM--AA

DO'S AND DON'TS

Do's

1. Use lab two 25-minute periods per week.
2. Supervise and monitor all lab drill.
3. Must use lab tapes in class an average of one fourth period daily.
4. Conduct class in foreign language.
5. Use English to clarify difficult points.
6. Spend an average of three to five minutes daily on pronunciation drills.
7. Teach vocabulary in context only.
8. Start writing at end of prereading phase.
9. Give writing assignments on previously learned material.

Don'ts

1. No emphasis on refinement culture.
2. No vocabulary tests.
3. No systematic presentation of grammar.
4. No memorization of grammar generalizations.
5. No word for word translation or translation tests.
6. No use of text until after prereading phase.
7. No use of dialogs in lab after prereading phase.
8. No recording by students in lab.

FIRST DAY

A. Orientation.
   1. Explanation of course objectives and procedures.
      a. Language as speech - language evolved thousands of years before reading and writing, comparatively recent developments.
      b. Language learning - acquiring skills of communication.
         1) Speaking, reading, writing.
         2) First step is to "break the sound barrier." (Speaking and Listening come before reading and writing).
         3) Like learning to play a musical instrument.
            a) Skills developed through practice, correction and more practice.
            b) Language is actually a habit, something automatic, communicative.

B. Method of first four units.
   1. Concentration of two important aspects of language learning.
      a. New sound system.
         1) No books, printed material or chalkboards until after first four lessons have been learned.
         2) After thorough mastery, students will learn to read and write the already learned materials.
         3) Memorization of basic dialogs by imitation and repetition after model.
         4) Work with pronunciation and structure drills.
         5) Teacher to serve as primary model.
            a) Others supplied by tapes and records featuring educated natives, speaking at normal speed.
      b. Basic grammatical structures.
         1) Method of attaining correct usage in regard to grammatical patterns of the language.
            a) Speaking drills - repetition, until students can say them without hesitation or mistakes.
   2. Use of names.
      a. Assign to each student his name equivalent in the foreign language.
      b. Teach each student to say "My name is ______" in the language.
      c. Substitute these names in context with the appropriate changes in syntax when teaching.
   3. Insist on active student participation.
   4. Time allowing, begin presentation of basic dialog, Unit 1.

INTERMEDIATE - UNIT 6

A. Warm-up (3 minutes).
  1. Cardinal numbers, Unit 5.
    a. Counting in and out of sequence.
    b. Choral reinforcement where needed.

B. Basic material (15 minutes).
  1. Introduce first half of dialog, Unit 6.
    a. Give English.
      1) Make use of props, gestures and dramatization.
    b. Model German.
      1) Make use of the same props, gestures and dramatization.
  2. Teach first half of dialog, Unit 6.
    a. Model each line several times.
      1) Break lines into partials where needed, using "backward build-up."
    b. Elicit choral, part-choral and individual repetition.
    c. Give English for difficult lexical items that recur.

C. Review (15 minutes).
  1. Pattern practices, Unit 5.
    a. Rapid choral repetition of patterns.
    b. Random sampling of individual repetition (May use item substitution).
    c. Choral reinforcement on weak points only.
  2. Check-up on pronunciation (Teacher's Edition).
    a. Check individual pronunciation of key words.
    b. Choral repetition where reinforcement is needed.
  3. Factual and personal questions, Unit 5.
    a. Found in conversations.
    b. Questions to elicit both first and third person questions and answers.
    c. Rapid work with pairs of students (at their seats).
    d. Cue correct responses to prevent "stumbling."
    e. Choral and part-choral repetition of correct responses.

D. Reading, writing and spelling (10 minutes).
  1. Dialog and question-answer practice, Unit 5.
    a. Review reading.
      1) Choral - individual.
    b. Dictation.

E. Re-entry (2 minutes).
  1. Choral repetition of first half of dialog, Unit 6.

F. Assignment: Practice record six, side A, band 1.

FUNCTIONAL SKILLS GRAMMAR

A-LM GERMAN LEVEL ONE

Specific classroom activities.

A. Overview.
  1. Text: A-LM GERMAN LEVEL ONE, published by Harcourt, Brace and World, 1961, 1963.
    a. Teacher to have copy of text and Teacher's Manual.
    b. Each student to have his own copy of text.
  2. Required equipment and materials.
    a. Audio-active laboratory.
    b. Tape recorder or record player.
    c. Complete set of lab tapes or records.
    d. Student practice records for home use.
  3. Optional equipment and materials.
    a. Teacher's cue cards.
    b. Dialog posters.
    c. Student test booklets.
    d. Complete set of test tapes.

B. Suggestions to the teacher.
  1. Use of foreign language.
    a. Essential for teacher to conduct class in German.
    b. English to be used only when necessary for clarifying difficult points.
  2. Pronunciation.
    a. Teacher's pronunciation to serve as model.
    b. Teacher to spend an average of three to five minutes daily on pronunciation drills.
    c. Corresponding drill tapes to be used as supplement.
    d. For detailed instructions see Teacher's Manual.
  3. Vocabulary.
    a. Should be taught only within context of dialogs and drills.
    b. Continuous review insured by subsequent reintroduction of vocabulary.
  4. Lab tapes.
    a. Should be used daily for an average of one fourth of class period.
    b. Should be used for reinforcing material previously introduced.
  5. Grammar.
    a. All grammar appearing in "Generalizations" to be taught.
    b. In addition, the following to be taught:
      1) Verbs.
        a) WISSEN, KENNEN.
        b) HABEN, SEIN (present perfect and auxiliaries).
        c) WERDEN and infinitive (future tense).

- 2) Dative case.
  - a) Comprehensive treatment.
  - b) Prepositions which govern dative.

6. Reading.
   - a. Should be introduced after Unit 4 (prereading phase), and include only material previously heard.
   - b. Sequence should be from choral to individual response.
   - c. No formal translation permitted.
7. Homework.
   - a. During prereading phase, dialog memorization with aid of student practice records.
   - b. After prereading phase, dialog memorization to continue, but now with printed text in addition to practice records.
   - c. Refer to "Writing" (below) for further homework suggestions.
8. Writing.
   - a. Should start at conclusion of prereading phase.
   - b. Should always be based on previously learned dialogs and conversations.
   - c. Consists of three types (See Teacher's Manual, Introduction, section entitled "Reading, Writing, Spelling").
9. Culture.
   - a. Only everyday activities and situations (the anthropologist's "total culture") treated in text.
   - b. Refinement culture.
     - 1) Not developed in text.
     - 2) Brief commentary permitted when specific references appear in text.
10. Review.
    - a. "Recombination Narratives," Units 4, 5, 6, 8, 9.
    - b. "Recombination Reading Narratives," Units 10 to 14.
11. Testing.
    - a. Proportion of grade based on oral testing:
      - 1) Prereading phase - 100 per cent.
      - 2) After prereading phase - 50 per cent.
    - b. Unit tests (with key) in Teacher's Manual to be administered.
    - c. To supplement, teacher may use following types of tests:
      - 1) Dictation (only of previously learned material).
      - 2) Rejoinder and completion.
      - 3) Multiple choice.
      - 4) True-false.

C. Methodology.

1. Dialog.
   - a. Give oral model of dialog sentences.
   - b. Dramatize sentences, using props, gestures, etc.

c. Indicate speaker, using dialog posters or stick figures.
d. Drill dialog by proceeding from choral, part-choral to individual.
e. After several sentences have been learned, play that portion of practice record for class.
  1) Distribute records.
  2) Ask students to practice lines at home for 15 to 20 minutes.
f. Have students dramatize dialog after gaining oral control.

2. Dialog adaptation.
  a. Relate dialog to student's personal experience to aid memorization.
  b. Present oral models.
  c. Practice with students.
  d. Begin "chain practice" (See Teacher's Manual).
3. Structure drills.
  a. Present frame utterance exemplifying grammatical point.
  b. For detailed instructions see Teacher's Manual.
4. Directed dialog.
  a. Stimulate controlled conversation by commands.
  b. For presentation see Teacher's Manual.
5. "Generalizations."
  a. Draw paradigms (found at end of unit in text) on blackboard.
  b. Explain grammatical rules and exceptions, and give examples.
  c. Work with applicable drills.
  d. Have student keep a notebook.
    1) This is to include grammar rules and paradigms.
    2) This material to be memorized by student.
6. "Recombination Narratives."
  a. Recite narrative once or twice and question students for comprehension.
  b. See Teacher's Manual for further procedure.
7. "Recombination Reading Narratives."
  a. Read narrative once or twice to students who follow it in their texts.
8. "Supplement."
  a. Teach by repetition.
  b. Drill by question-answer.
9. Tapes.
  a. In the laboratory.
    1) Two 25-minute periods per week.
    2) Student must not record.
    3) Do not use dialogs.
    4) Supervise all drill (See Teacher's Manual for detailed instructions).
    5) Supplementary lab drill for individual students at discretion of teacher.
  b. In the classroom.
    1) Average of one fourth of total weekly instruction time.

    2) For reinforcement of previously introduced material.

D. Recommended minimum rate of coverage.
  1. At end of semester - 4 to 5 units.
  2. At end of year - 9 units.

DO'S AND DON'TS

Do's

1. Use lab two 25-minute periods per week.
2. Spend half of lab time for recording and half for playback. (Omitted for Audio-Active laboratory classes)
3. Supervise and monitor all lab drills.
4. Use lab tapes in class an average of one fourth period daily.
5. Conduct class in foreign language.
6. Use English only for explaining structures and grammar.
7. Spend an average of three to five minutes daily on pronunciation drills.
8. Teach vocabulary in context only.
9. Devote an average of one third of class time to grammar.
10. Follow grammar sequence prescribed by text.
11. Teach grammar after textual examples appear.
12. Require students to keep notebook for grammar.
13. Have students memorize rules of grammar.
14. Start writing at end of prereading phase.
15. Give writing assignments on previously learned material.

Don'ts

1. No emphasis on refinement culture.
2. No vocabulary tests.
3. No word for word translation or translation tests.
4. No use of text until after prereading phase.
5. No use of dialogs in lab after prereading phase.

FIRST DAY

A. Orientation.
  1. Explanation of course objectives and procedures.
    a. Language as combination of speech and grammar.
      1) Language, in its first form, is essentially speech. An integral part of language is the knowledge of grammatical constructions.
      2) Language learning - acquiring skills of communication.
        a) Speaking, reading, writing.
        b) Must "break the sound barrier" while understanding grammatical structures included.
        c) Like learning to play a musical instrument.
          1. Skills developed through practice, correction and more practice.
          2. Language is actually a habit, with correct grammatical construction being automatic.
          3. Language is communicative.

B. Method of first four units.
  1. New sound system.
    a. Mastery in speech and listening is necessary.
    b. Mastery of all four skills will take place in proper sequence with neither speech nor grammar taking procedure.
  2. Gaining control of new sound systems.
    a. Memorization of basic dialogs by imitation and repetition after model.
    b. Work with pronunciation and structure drills.
    c. Teacher to serve as primary model.
      1) Others supplied by tapes and records featuring educated natives, speaking at normal speed.
  3. Gaining control of grammatical patterns.
    a. Speaking drills.
    b. Grammar generalizations.
  4. Use of names.
    a. Assign to each student his name equivalent in the foreign language.
    b. Teach student to say "My name is ______" in the language.
    c. Substitute these names in context with the appropriate changes in syntax when teaching.
    d. Insist on active student participation.
  5. Time allowing, begin presentation of basic dialog, Unit 1.

INTERMEDIATE

- A. Warm-up (3 minutes).
  - 1. Supplement, Unit 5 (German - numbers to 100).
    - a. Individual response to teacher question.
    - b. Choral reinforcement as needed.
- B. Basic material (10 minutes).
  - 1. Introduce first half of dialog, Unit 6.
    - a. Give English.
      - 1) Make use of props, gestures and dramatization.
    - b. Model German.
      - 1) Make use of the same props, gestures and dramatization.
  - 2. Teach first four lines of dialog.
    - a. Model each line several times.
      - 1) Break lines into partials where necessary.
    - b. Elicit choral, part-choral and individual repetition.
    - c. Give English for difficult lexical items that recur.
- C. Review (10 minutes).
  - 1. Personal pronouns, Unit 5.
    - a. Rapid choral review of repetition drill.
    - b. Random sampling of remaining drills on personal pronouns.
      - 1) Individual response.
      - 2) Choral reinforcement on weak spots only.
  - 2. Pronunciation Drill A, Unit 5, Teacher's Manual, p. 44.
    - a. Model words and sentences.
    - b. Individual repetition.
    - c. Choral reinforcement when needed.
  - 3. Directed dialog, Unit 5.
    - a. Rapid work with pairs of students (at their seats).
    - b. Cue correct responses to prevent "stumbling."
    - c. Choral and part-choral repetition of correct responses.
- D. Reading, writing and spelling (10 minutes).
  - 1. Lesson 18, page 28.
    - a. Review contrast drill.
    - b. Dictation.
- E. Grammar (10 minutes).
  - 1. Drawing paradigms of grammar generalization on board (to be found at end of unit in text, or in additional materials).
  - 2. Explanation of paradigm.
    - a. Grammatical rules and exceptions.
    - b. Examples.
    - c. Work with applicable drills.
  - 3. Writing by students in notebooks.
  - 4. Memorization by students.
- F. Re-entry (2 minutes).
  - 1. Choral repetition of first four lines of dialog, Unit 6.
- G. Assignment.
  - 1. Practice record six, side A, band 1.
  - 2. Grammar assignment.

LAB PROCEDURES -- AA LAB

1. Equipment check.
    a. Teacher.
        1) Turn on console power and put on program.
        2) Check positions (with aid of seating charts). Then enter results in daily log sheet.
    b. Students.
        1) Check for and report any damage at once.
        2) Turn on controls.
2. Opening procedures.
    a. Teacher - start program.
    b. Students - put on headsets and adjust controls.
3. Listen-respond operations.
    a. Part I.
        1) Teacher - listen and evaluate students.
        2) Students - listen and respond to program for approximately 10 minutes.
    b. Part II.
        1) Teacher - monitor and correct students.
        2) Students - listen and respond to same program for approximately 10 minutes.
4. Closing procedures.
    a. Teacher.
        1) Rewind program tapes.
        2) Turn off console power.
    b. Students.
        1) Replace headsets.
        2) Turn off controls.

LAB PROCEDURES -- AR LAB

1. Equipment check.
   a. Teacher.
      1) Turn on console power and put on program.
      2) Check positions (with aid of seating charts). Then enter results on daily log sheet.
   b. Students.
      1) Check for and report any damage at once.
      2) Set up tape for recording.
      3) Turn on controls.
2. Opening procedures.
   a. Teacher - start program.
   b. Students - put on headsets and adjust controls.
3. Recording and playback operations.
   a. Part I.
      1) Teacher - monitor by listening at console and/or circulating around the lab.
      2) Students - listen and record program for approximately 10 minutes.
   b. Part II.
      1) Teacher - keep order while students play back and listen to their recordings.
      2) Students - listen to their recording of the program for approximately 10 minutes.
4. Closing procedures.
   a. Teacher.
      1) Rewind program tapes.
      2) Turn off console power.
   b. Students.
      1) Rewind tapes.
      2) Replace headsets.
      3) Turn off controls.

APPENDIX C

OBSERVATION REPORTS

OBSERVATION REPORT

Preliminary Model - September, 1965

Name____ Date______________

School______________________________________ Condition_________

1. Class Activity____

____

2. Teacher Activity
    - a. Presentation______________________________________
    - b. A-V aids____
    - c. Use of FL____
    - d. Culture____
    - e. Other____

3. Student Activity
    - a. Group Drill_______________________________________
    - b. Individual Drill__________________________________
    - c. Dramatization_____________________________________
    - d. Machine Drill_____________________________________
    - e. Language Lab______________________________________
    - f. Testing____

4. Teacher Attitude____

____

5. Pupil Attitude____

____

6. Condition Deviation_______________________________________

7. Comments____

OBSERVATION REPORT

Preliminary Model - September, 1965

Observation Report--Field Consultant________________Date______

Teacher_______________________School________________Cond.______

I. Teaching Practices

1. Monitors and corrects students individually ☐ 1.
2. Degree of pupil use of equipment ☐ 2.

(check which) duration (in min.)

3. Type of lab. lesson
   - a. Listening-comprehension ☐ a.
   - b. Mimicry-memorization ☐ b. ☐
   - c. Creative practice ☐ c. ☐
   - d. Self-evaluation ☐ d. ☐
   - e. Quiz - listening ☐ e. ☐
   - f. Quiz - speaking ☐ f. ☐
4. Use of tapes
   - a. Pronunciation ☐ a.
   - b. Dialogs ☐ b.
   - c. Structure drills ☐ c.
   - d. Testing ☐ d.

II. Status of Laboratory Equipment
(Report on all malfunctions occurring since last visit.)

	Date of break-down	Action Taken	Date of Restored Service	Nature of Malfunction
Teacher Console				
Tape Deck				
Microphone				
Headphone				
Switches				
Student Booths Headphone and/or microphone				
Desk Equipment				
Adequacy of sound				
Record equipment				

OBSERVATION REPORT

Second Model - January, 1966

Observation Report--Field Consultant________________ Date_______

Teacher____________________ School__________________ Cond._______

FSM

1. Teacher speaks foreign language ☐ 1.
2. Students speak foreign language ☐ 2.
3. Grammar: Subsidiary to functional skills ☐ 3.
4. Speaking only what was listened to ☐ 4.
5. Reading as direct communication ☐ 5.
6. Reading only what was listened to and spoken ☐ 6.
7. Writing only what was listened to, spoken and read ☐ 7.
8. Language as a cultural behavior pattern ☐ 8.
9. Testing as demonstration of functional proficiency ☐ 9.
10. Average use of tapes--ten minutes per day ☐ 10.
11. Average pronunciation drill--3-5 minutes per day ☐ 11.
12. Vocabulary taught in context only ☐ 12.

FSG

1. Teacher speaks foreign language ☐ 1.
2. Students speak foreign language ☐ 2.
3. Grammar: Descriptive; use before rules ☐ 3.
4. Speaking only what was listened to ☐ 4.
5. Reading as direct communication ☐ 5.
6. Reading only what was listened to and spoken ☐ 6.
7. Writing only what was listened to, spoken and read ☐ 7.
8. Language as a cultural behavior pattern ☐ 8.
9. Testing as demonstration of functional proficiency ☐ 9.
10. Average use of tapes--ten minutes per day ☐ 10.
11. Average pronunciation drill--3-5 minutes per day ☐ 11.
12. Vocabulary taught in context only ☐ 12.

TLM

1. Vocabulary drill ☐ 1.
2. Translation of reading lesson ☐ 2.
3. Grammar--formal analysis ☐ 3.
4. Pronunciation--teacher ☐ 4.
5. Pronunciation--student ☐ 5.
6. Reading for total comprehension ☐ 6.
7. Writing--free composition ☐ 7.
8. Culture (refinement) ☐ 8.
9. Use of tape recorder ☐ 9.
10. Use of visual aids ☐ 10.

APPENDIX D

STATISTICAL DATA,

MULTIVARIATE ANALYSIS OF VARIANCE

TEACHING STRATEGIES AND LANGUAGE LABORATORY SYSTEMS

TABLE 63

FRENCH: PRE-EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes observed

Group	Lang. I.Q.	Non-L. I.Q.	I.Q.-T	MLAT III	MLAT IV	MLAT V	MLAT Ttl.
1. TLM-M	112.25	110.05	112.60	8.71	16.61	12.30	37.61
N 10	5.83	6.10	5.68	2.95	3.44	1.82	6.39
2. TLM-F	112.15	109.49	111.87	12.40	18.24	15.13	45.75
N 9	6.33	5.06	5.34	3.44	2.52	2.37	6.53
3. FSG-TR-M	116.31	111.10	115.50	12.77	18.99	14.81	46.57
N 3	7.68	12.15	10.61	2.80	8.07	5.37	14.32
4. FSG-TR-F	110.39	106.76	109.98	14.36	21.12	14.67	49.53
N 3	6.90	9.53	8.82	4.14	3.27	3.4	2.67
5. FSG-AA-M	108.41	107.76	109.78	13.22	17.11	13.18	43.30
N 7	7.33	8.09	8.06	5.18	5.22	3.37	9.34
6. FSG-AA-F	108.43	105.26	107.88	15.98	18.37	14.76	48.85
N 7	7.77	10.55	9.42	3.90	3.62	3.75	8.96
7. FSG-AR-M	110.91	111.63	112.70	10.85	16.55	14.10	41.50
N 11	7.78	7.78	7.00	5.31	6.47	4.42	13.82
8. FSG-AR-F	111.85	109.19	113.74	15.52	21.28	16.27	52.93
N 11	6.55	8.75	4.61	4.39	3.97	3.15	8.73
9. FSM-TR-M	120.78	114.04	119.71	13.27	13.90	14.44	41.57
N 3	6.75	3.15	5.50	0.93	4.59	1.90	6.96
10. FSM-TR-F	114.76	110.39	114.08	14.36	14.60	14.34	43.02
N 2	2.88	.31	1.68	3.17	3.68	2.44	9.69
11. FSM-AA-M	112.01	112.36	113.50	12.00	15.47	13.48	40.93
N 9	4.75	4.93	3.83	2.25	2.04	2.14	4.45
12. FSM-AA-F	111.84	108.26	111.66	14.54	19.85	16.82	50.96
N 9	5.30	3.71	4.06	3.37	4.08	2.83	7.52
13. FSM-AR-M	115.34	111.27	115.11	13.31	19.81	14.48	47.71
N 11	6.17	7.73	5.87	3.47	4.46	3.13	7.78
14. FSM-AR-F	111.85	109.19	113.74	15.52	21.28	16.26	52.93
N 11	6.55	8.75	4.61	4.39	3.97	3.15	8.73

TABLE 64

FRENCH: PRE-EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	Coop-R	Coop-V	Coop-G	Coop-T	LA List.
1. TLM-M	7.69	11.01	7.66	26.37	9.75
N 10	2.77	3.68	2.55	8.50	1.06
2. TLM-F	7.55	11.74	7.58	26.87	9.11
N 9	2.92	4.66	2.92	10.15	1.44
3. FSG-TR-M	3.32	7.37	4.26	14.95	8.58
N 3	0.63	2.76	0.35	2.91	0.80
4. FSG-TR-F	4.07	6.56	3.82	14.45	8.18
N 3	1.54	2.59	2.02	6.09	2.33
5. FSG-AA-M	8.30	12.01	7.84	28.16	9.22
N 7	1.08	1.36	1.23	2.81	0.75
6. FSG-AA-F	7.96	11.90	7.74	27.59	8.85
N 7	0.91	1.94	0.73	2.63	1.03
7. FSG-AR-M	7.28	9.96	7.08	24.31	10.41
N 11	1.66	2.50	1.76	5.11	2.51
8. FSG-AR-F	7.15	10.74	7.52	25.41	8.99
N 11	1.83	2.48	1.52	5.54	1.64
9. FSM-TR-M	7.17	11.73	5.96	24.89	9.47
N 3	2.32	4.84	3.14	9.82	1.11
10. FSM-TR-F	7.66	13.60	7.86	29.12	10.40
N 2	1.80	3.68	0.20	5.67	1.42
11. FSM-AA-M	6.48	10.09	5.95	22.52	9.90
N 9	2.19	3.16	1.70	6.70	1.82
12. FSM-AA-F	7.47	11.14	6.63	25.24	10.08
N 9	2.62	4.41	2.92	9.39	1.76
13. FSM-AR-M	6.09	11.34	6.78	24.21	9.32
N 11	3.64	4.26	4.06	11.45	3.85
14. FSM-AR-F	6.07	11.41	7.67	20.12	10.40
N 11	2.53	4.30	3.09	5.67	1.42

TABLE 65

FRENCH: EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	Mid-List.	Mid-Read.	LD-I	LD-II	LD-III	LD-IV	LD-T
1. TLM-M N 10	12.29 1.17	13.74 0.70	9.57 0.70	11.47 2.53	10.05 1.15	11.76 2.17	42.72 5.71
2. TLM-F N 9	13.63 1.82	15.91 1.46	9.91 0.97	12.14 1.52	11.41 1.07	12.81 1.59	46.28 4.38
3. FSG-TR-M N 3	12.42 3.45	12.26 2.38	8.94 1.62	10.85 0.85	9.85 2.63	9.94 0.34	39.57 5.08
4. FSG-TR-F N 3	11.37 2.16	13.46 0.69	9.50 2.32	11.81 0.73	9.23 1.02	10.64 1.19	41.18 4.72
5. FSG-AA-M N 7	12.42 2.66	12.90 1.57	9.06 1.77	12.11 1.74	8.95 2.51	11.17 1.98	41.43 6.26
6. FSG-AA-F N 7	12.22 2.11	13.60 1.69	10.19 1.18	12.39 1.01	9.99 1.65	12.16 1.59	44.68 4.66
7. FSG-AR-M N 11	12.28 3.52	13.44 1.06	8.98 1.60	11.86 1.97	9.64 2.68	11.29 1.81	41.68 5.96
8. FSG-AR-F N 11	12.36 1.95	13.15 1.02	9.73 1.07	11.89 1.52	10.34 1.64	12.01 2.21	44.03 5.49
9. FSM-TR-M N 3	13.36 0.81	14.10 1.49	9.79 1.05	12.21 1.61	9.96 2.66	11.73 1.11	43.68 6.21
10. FSM-TR-F N 2	12.80 2.55	14.84 1.35	10.23 0.14	11.07 0.29	9.19 0.36	11.41 0.20	41.91 1.00
11. FSM-AA-M N 9	12.14 1.28	14.20 1.47	9.25 1.26	11.96 0.94	9.84 1.42	11.17 0.97	42.41 3.72
12. FSM-AA-F N 9	12.87 2.09	14.43 1.49	9.98 0.90	12.22 0.85	10.78 1.57	12.26 2.01	45.24 4.79
13. FSM-AR-M N 11	12.79 2.56	13.51 3.32	9.68 0.86	11.88 1.96	10.69 2.06	12.26 2.02	44.51 4.36
14. FSM-AR-F N 11	13.35 2.83	14.60 1.75	9.98 1.34	12.32 1.60	10.90 1.03	12.88 2.12	46.07 4.18

TABLE 66

FRENCH

WITHIN CELLS CORRELATIONS OF CRITERIA

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 Final LA-L												
2 Final LA-R	.755											
3 Final Coop R	.789	.840										
4 Final Coop V	.624	.666	.785									
5 Final Coop G	.655	.709	.719	.696								
6 Final Coop Total	.756	.809	.920	.927	.871							
7 Lang. I.Q.	.466	.514	.528	.513	.469	.556						
8 Non-L I.Q.	.242	.202	.219	.136	.123	.175	.560					
9 I.Q.-T	.419	.406	.435	.388	.345	.430	.893	.867				
10 MLAT-III, Spell	.384	.424	.471	.426	.367	.466	.295	.024	.189			
11 MLAT-IV, Words	.476	.443	.504	.532	.474	.557	.486	.352	.495	.431		
12 MLAT-V, Pairs	.429	.312	.437	.395	.368	.441	.403	.396	.469	.186	.547	
13 MLAT-Total	.555	.511	.606	.587	.525	.633	.518	.331	.501	.712	.881	.708
14 Pre-Coop, R	.066	.114	.244	.441	.220	.344	.266	.121	.225	.082	.160	.100
15 Pre-Coop, V	.263	.263	.403	.552	.413	.510	.225	.085	.187	.149	,211	.236
16 Pre-Coop, G	-.025	.086	.206	.392	.262	.324	.196	.092	.161	.019	.025	.104
17 Pre-Coop Total	.130	.179	.319	.504	.334	.434	.243	.103	.202	.097	.151	.169
18 Pre-LA, L	.012	-.015	.169	.240	.092	.191	.112	.104	.113	.072	.110	.147
19 Mid LB, L	.699	.511	.667	.652	.559	.693	.356	.116	.287	.254	.424	.486
20 Mid LB, R	.316	.283	.417	.293	.364	.389	.289	.325	.337	-.051	.156	.290
21 List. Discrim I	.217	.222	.154	-.004	.081	.079	.341	.312	.379	.042	.149	.165
22 List. Discrim II	.196	.262	.191	.083	.292	.197	.356	.279	.361	.105	.169	.115
23 List. Discrim III	.443	.447	.409	.482	.450	.494	.453	.267	.420	.219	.515	.295
24 List. Discrim IV	.287	.232	.218	.157	.249	.224	.353	.271	.364	.137	.222	.329
25 List. Discrim Tot.	.378	.384	.324	.253	.369	.341	.489	.362	.493	.173	.357	.304

TABLE 66 continued

Variable	13	14	15	16	17	18	19	20	21	22	23	24
13 MLAT-Total												
14 Pre-Coop, R	.151											
15 Pre-Coop, V	.249	.796										
16 Pre-Coop, G	.058	.835	.835									
17 Pre-Coop Total	.175	.921	.951	.941								
18 Pre-LA, L	.136	.534	.438	.483	.509							
19 Mid LB-L	.489	.364	.515	.291	.432	.361						
20 Mid LB-R	.161	.322	.428	.429	.424	.478	.452					
21 List. Discrim I.	.152	-.108	-.118	-.117	-.122	-.092	-.001	.071				
22 Lis.Discm. II	.173	-.135	-.018	-.076	-.073	.243	-.008	-.041	.420			
23 Lis.Discm. III	.456	.144	.162	.046	.131	.009	.264	.132	.365	.369		
24 Lis.Discm. IV	.293	-.030	.062	-.042	.005	-.061	.154	.081	.469	.521	.568	
25 Lis.Discm.Tot	.364	-.034	.041	-.057	-.009	-.124	.150	.078	.684	.748	.777	.851

FRENCH

ten percent random sample

	2.	3.
1. Mid-year Speaking Test	.727	.544
2. Final Speaking Test	---	.651
3. Final Writing Test		---

TABLE 67

GERMAN: PRE-EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes observed

Group	Lang. I.Q.	Non-L. I.Q.	I.Q.-T	MLAT III	MLAT IV	MLAT V	MLAT Ttl.
1. TLM-M	116.66	115.33	118.42	10.67	19.41	14.08	44.23
N 6	3.72	3.61	3.55	2.09	4.39	2.75	7.69
2. TLM-F	115.83	111.39	115.38	13.71	21.91	18.39	53.94
N 6	2.82	4.35	3.54	5.67	5.62	3.27	12.01
3. FSG-TR-M	113.96	109.24	113.12	13.75	14.08	13.38	41.29
N 5	2.17	7.20	4.65	5.60	6.59	3.63	12.28
4. FSG-TR-F	113.12	105.25	110.33	17.85	17.01	15.98	49.70
N 4	5.26	10.69	7.58	4.41	9.31	5.07	15.36
5. FSG-AA-M	115.44	114.35	116.50	10.60	18.74	13.83	43.20
N 4	4.47	4.70	4.24	3.94	4.13	1.51	9.41
6. FSG-AA-F	115.21	112.67	115.60	15.17	23.51	17.45	55.94
N 4	4.74	1.82	2.87	2.90	4.70	3.18	9.23
7. FSG-AR-M	115.81	113.30	116.19	15.43	20.57	14.64	50.51
N 7	8.88	11.33	10.72	8.70	10.19	4.55	20.65
8. FSG-AR-F	114.55	108.99	113.66	18.91	19.50	16.72	55.13
N 7	6.60	5.50	4.54	9.89	4.40	2.52	14.27
9. FSM-TR-M	114.27	115.58	116.60	9.50	17.02	14.78	41.28
N 4	3.23	5.49	4.10	1.28	3.45	1.21	4.71
10. FSM-TR-F	114.78	113.02	113.66	18.91	19.50	16.72	55.13
N 4	4.08	4.29	4.51	9.89	4.39	2.52	14.27
11. FSM-AA-M	109.16	108.85	109.30	17.89	15.12	13.43	46.43
N 7	8.20	9.51	8.99	9.90	3.49	1.45	8.60
12. FSM-AA-F	111.92	113.10	113.82	18.92	18.55	15.99	53.63
N 8	6.96	6.31	6.69	8.51	5.43	3.36	11.86
13. FSM-AR-M	115.18	112.41	115.45	11.56	16.03	13.38	40.90
N 8	4.29	5.82	3.82	2.82	2.91	2.98	7.45
14. FSM-AR-M	110.55	111.16	112.35	12.86	18.44	16.43	47.86
N 7	5.08	6.09	5.02	10.03	7.50	3.18	17.86

TABLE 68

GERMAN: PRE-EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	Coop-R	Coop-V	Coop-G	Coop-T	LA-List.
1. TLM-M	8.54	9.95	7.58	26.24	10.03
N 6	4.51	3.73	2.19	9.91	4.16
2. TLM-F	6.59	9.11	7.30	23.00	8.33
N 6	5.10	4.88	2.68	11.95	4.00
3. FSG-TR-M	8.81	10.33	6.41	25.55	10.70
N 5	1.18	1.17	1.53	2.28	1.09
4. FSG-TR-F	8.64	10.59	7.21	26.44	10.77
N 4	1.19	0.53	3.26	4.14	0.45
5. FSG-AA-M	9.49	12.57	8.34	30.40	11.59
N 4	0.96	1.58	1.42	2.57	1.11
6. FSG-AA-F	9.28	12.20	8.79	30.28	11.25
N 4	2.41	2.41	0.91	4.50	2.98
7. FSG-AR-M	6.78	10.00	7.12	23.91	11.93
N 7	1.36	2.05	1.41	4.19	1.47
8. FSG-AR-F	9.20	10.45	8.12	27.77	11.53
N 7	3.17	1.95	2.03	6.08	1.90
9. FSM-TR-M	8.50	11.02	8.31	27.83	11.33
N 4	1.00	0.61	1.27	2.64	0.77
10. FSM-TR-F	8.13	10.08	9.77	27.98	10.82
N 4	2.64	1.31	2.57	5.82	2.31
11. FSM-AA-M	8.36	12.26	7.44	28.06	11.61
N 7	1.79	1.05	1.01	3.38	1.06
12. FSM-AA-F	9.96	11.99	7.87	29.82	11.79
N 8	2.84	1.32	0.91	4.39	1.42
13. FSM-AR-M	6.64	9.12	5.76	23.91	11.93
N 8	5.67	4.82	2.60	4.19	1.47
14. FSM-AR-F	7.16	9.21	6.03	22.42	10.47
N 7	5.71	6.73	2.35	14.05	1.73

TABLE 69

GERMAN: EXPERIMENTAL

GROUP MEANS AND STANDARD DEVIATIONS

N=number of classes

Group	Mid-List.	Mid-Read.	LD-I	LD-II	LD-III	LD-IV	LD-T
1. TLM-M	13.64	14.53	4.65	13.03	10.81	12.71	41.10
N 6	1.89	1.27	0.51	1.31	0.79	1.35	3.53
2. TLM-F	12.57	14.67	4.80	13.17	10.92	13.16	42.05
N 6	1.12	1.34	1.40	1.66	1.17	1.26	3.97
3. FSG-TR-M	12.00	12.09	5.04	12.48	8.54	10.66	36.88
N 5	0.98	0.79	.059	0.77	2.00	1.28	3.46
4. FSG-TR-F	12.33	13.49	4.98	13.05	10.57	11.33	39.93
N 4	1.29	1.47	0.87	0.90	2.32	1.83	3.83
5. FSG-AA-M	12.05	13.34	5.34	13.33	10.43	13.07	42.15
N 4	1.73	0.61	0.13	0.53	1.47	0.90	2.49
6. FSG-AA-F	13.09	13.45	4.97	13.62	11.23	14.22	44.03
N 4	1.79	1.78	0.64	0.99	0.80	0.78	2.60
7. FSG-AR-M	13.23	12.67	5.27	13.01	10.58	12.21	41.07
N 7	2.06	2.38	0.59	2.13	2.32	2.78	6.02
8. FSG-AR-F	12.57	12.25	5.34	14.40	10.97	12.99	43.70
N 7	2.35	2.31	0.53	1.40	2.19	1.72	4.32
9. FSM-TR-M	12.49	12.80	5.56	12.86	9.58	12.50	40.49
N 4	2.26	1.44	0.73	1.38	1.23	1.23	4.02
10. FSM-TR-F	13.55	14.09	5.95	12.34	11.18	13.37	42.84
N 4	2.18	1.14	0.65	1.16	2.19	1.72	5.54
11. FSM-AA-M	11.25	12.60	5.28	12.52	9.27	11.47	37.22
N 7	1.95	0.86	1.15	1.47	1.37	1.69	3.93
12. FSM-AA-F	12.05	13.37	5.34	13.33	10.43	13.07	42.54
N 8	1.73	0.61	0.13	0.53	1.47	0.90	4.55
13. FSM-AR-M	11.39	13.19	5.35	13.32	10.69	11.74	40.99
N 8	2.15	1.13	0.80	1.30	1.00	2.51	3.75
14. FSM-AR-M	12.30	12.59	5.39	12.77	10.38	11.66	40.14
N 7	3.12	4.33	0.755	1.15	2.58	4.02	7.56

TABLE 70

GERMAN

WITHIN CELLS CORRELATIONS OF CRITERIA

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 Final LA-L												
2 Final LA-R	.535											
3 Final Coop R	.710	.633										
4 Final Coop V	.596	.454	.672									
5 Final Coop G	.437	.477	.601	.620								
6 Final Coop Ttl.	.685	.615	.904	.863	.832							
7 Lang. I.Q.	.299	.379	.485	.173	.433	.435						
8 Non-L, I.Q.	.304	.370	.416	.300	.416	.439	.523					
9 I.Q.-T	.355	.412	.520	.278	.491	.506	.868	.864				
10 MLAT-III, Spl.	.013	.066	.145	-.104	.091	.048	.048	.147	.128			
11 MLAT-IV, Words	.222	.340	.482	.183	.494	.458	.543	.538	.633	.282		
12 MLAT-V, Pairs	.173	.277	.332	.096	.163	.245	.400	.382	.473	.411	.652	
13 MLAT-Total	.162	.267	.393	.062	.325	.318	.382	.430	.486	.785	.785	.789
14 Pre-Coop, R	.381	.217	.401	.286	.048	.302	.188	.209	.243	-.082	.084	.141
15 Pre-Coop, V	.232	.127	.331	.312	.043	.247	.050	.231	.162	-.102	-.017	.015
16 Pre-Coop, G	.356	.251	.489	.327	.210	.413	.182	.366	.318	-.021	.183	.145
17 Pre-Coop, Ttl.	.353	.209	.434	.336	.055	.338	.147	.278	.253	-.083	.077	.106
18 Pre-LA,L	.340	.118	.222	.287	.049	.185	.022	.107	.079	-.049	-.124	-.020
19 Mid-LB-L	.623	.435	.582	.433	.158	.475	.319	.314	.387	.005	.194	.199
20 Mid LB-R'	.444	.350	.290	.318	.325	.354	.337	.271	.331	-.281	.046	-.043
21 List. Dis. I	.108	-.048	.022	-.059	-.073	-.034	-.051	.074	.002	.114	.206	.117
22 List. Dis. II	.337	.282	.477	.198	.307	.397	.377	.291	.383	.286	.242	.200
23 List. Dis. III	.399	.332	.517	.271	.503	.507	.405	.421	.478	.405	.683	.493
24 List. Dis. IV	.434	.300	.496	.358	.411	.495	.276	.305	.340	.395	.516	.521
25 List. Dis. Ttl.	.467	.363	.559	.327	.467	.534	.384	.395	.455	.460	.591	.524

TABLE 70 continued

Variable	13	14	15	16	17	18	19	20	21	22	23	24
13 MLAT-Total												
14 Pre-Coop, R	.027											
15 Pre-Coop, V	-.062	.794										
16 Pre-Coop, G	.105	.688	.659									
17 Pre-Coop, Total	.014	.941	.925	.821								
18 Pre-LA, L	-.088	.603	.538	.500	.612							
19 Mid LB, L	.147	.466	.360	.524	.486	.384						
20 Mid LB, R	-.141	.234	.116	.131	.184	.171	.346					
21 List. Dis. I	.191	-.004	-.098	-.203	-.090	-.096	-.096	-.007				
22 List. Dis. II	.324	.304	.147	.157	.234	.190	.349	.158	.191			
23 List. Dis. III	.672	.192	-.004	.130	.116	.041	.227	.110	.139	.399		
24 List. Dis. IV	.591	.283	.137	.168	.225	.200	.154	.089	.279	.402	.681	
25 List. Dis. Ttl.	.665	.273	.072	.126	.182	.131	.227	.111	.365	.638	.841	.895

GERMAN

ten percent random sample

	2.	3.
1. Mid-year Speaking Test	.709	.682
2. Final Speaking Test	---	.687
3. Final Writing Test		---

TABLE 71

UNIVARIATE ANALYSIS OF VARIANCE

TRADITIONAL vs FUNCTIONAL SKILLS GRAMMAR

Univariate F-Tests

FINAL TEST	FRENCH (44 Classes)		GERMAN (36 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.217	.168	1.344	.250
2. LA Reading	1.928	.017* TLM > FSG	2.393	.127
3. Coop. Reading	5.864	.014**TLM > FSG	3.015	.087
4. Coop. Vocabulary	6.236	.004**TLM > FSG	0.878	.352
5. Coop. Grammar	8.938	.005**TLM > FSG	2.667	.107
6. Coop. Total	8.293	.043* TLM > FSG	0.789	.377

TABLE 72

UNIVARIAGE ANALYSIS OF VARIANCE

TRADITIONAL vs FUNCTIONAL SKILLS METHOD

Univariate F-Tests

FINAL TEST	FRENCH (53 Classes)		GERMAN (38 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.030	.863	.057	.812
2. LA Reading	4.757	.032* TLM > FSM	1.083	.302
3. Coop. Reading	14.177	.001**TLM > FSM	26.497	.001**TLM > FSM
4. Coop. Vocabulary	9.039	.003**TLM > FSM	26.591	.001**TLM > FSM
5. Coop. Grammar	20.641	.001**TLM > FSM	11.497	.001**TLM > FSM
6. Coop. Total	16.592	.001**TLM > FSM	28.293	.001**TLM > FSM

TABLE 73

UNIVARIATE ANALYSIS OF VARIANCE

FUNCTIONAL SKILLS GRAMMAR vs FUNCTIONAL SKILLS METHOD

Univariate F-Tests

FINAL TEST	FRENCH (55 Classes)		GERMAN (41 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.405	.526	1.496	.225
2. LA Reading	.297	.587	.238	.627
3. Coop. Reading	1.991	.161	.339	.562
4. Coop. Vocabulary	8.815	.004**FSG > FSM	.342	.560
5. Coop. Grammar	2.291	.133	.065	.799
6. Coop. Total	5.203	.025* FSG > FSM	.298	.587

TABLE 74

UNIVARIAGE ANALYSIS OF VARIANCE

FUNCTIONAL SKILLS GRAMMAR vs FUNCTIONAL SKILLS, LABORATORY CLASSES ONLY

Univariate F-Tests

FINAL TEST	FRENCH (38 Classes)		GERMAN (27 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.378	.540	.569	.453
2. LA Reading	2.571	.112	.118	.733
3. Coop. Reading	1.087	.300	.025	.875
4. Coop. Vocabulary	1.877	.174	.016	.900
5. Coop. Grammar	.033	.856	.004	.948
6. Coop. Total	1.022	.315	.009	.925

TABLE 75

UNIVARIATE ANALYSIS OF VARIANCE

FUNCTIONAL SKILLS STRATEGIES: MALE vs FEMALE

Univariate F-Tests

FINAL TEST	FRENCH (32 Classes)			GERMAN (23 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. LA Listening	.442	.507		3.876	.053*	F > M
2. LA Reading	2.852	.094		5.818	.018*	F > M
3. Coop. Reading	3.737	.056		5.738	.019*	F > M
4. Coop. Vocabulary	4.116	.045*	F > M	7.169	.009**	F > M
5. Coop. Grammar	2.152	.145		7.570	.007**	F > M
6. Coop. Total	4.029	.047*	F > M	8.429	.005**	F > M

TABLE 76

UNIVARIATE ANALYSIS OF VARIANCE

AUDIO-ACTIVE vs AUDIO-RECORD, FUNCTIONAL SKILLS STRATEGIES-RANDOMLY ASSIGNED

Univariate F-Tests

FINAL TEST	FRENCH (53 Classes)		GERMAN (38 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.004	.947	1.202	.277
2. LA Reading	.076	.784	.003	.953
3. Coop. Reading	.005	.942	.010	.919
4. Coop. Vocabulary	.670	.415	.184	.670
5. Coop. Grammar	3.229	.076	.039	.844
6. Coop. Total	.898	.346	.026	.872

TABLE 77

UNIVARIATE ANALYSIS OF VARIANCE

INTERACTION: (FSG vs FSM) X (AA vs AR)

Univariate F-Tests

FINAL TEST	FRENCH (53 Classes)		GERMAN (38 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. LA Listening	.024	.876	.248	.620
2. LA Reading	.611	.436	.004	.948
3. Coop. Reading	2.367	.127	.000	.998
4. Coop. Vocabulary	.968	.328	.194	.661
5. Coop. Grammar	1.082	.301	.597	.442
6. Coop. Total	1.689	.197	.166	.685

TABLE 78

ANALYSIS OF COVARIANCE

Criteria : Final LA Listening Test

Covariate(s): 1. Pre-Exper. LA Listening Test
2. Language I.Q.

CONTRAST	FRENCH (53 Classes)		GERMAN (38 Classes)		
	F-Ratio	Probability	F-Ratio	Probability	
1. TLM vs FSG	.330	.567	.080	.778	
2. TLM vs FSM	.364	.548	.073	.788	
3. AA vs AR	.511	.476	1.560	.216	
4. FSG vs FSM	.030	.863	3.533	.065	
5. AA/AR vs FSG/FSM	.070	.791	.704	.404	
6. SEX	1.049	.309	5.112	.027*	F > M

TABLE 79

ANALYSIS OF COVARIANCE

Criteria : Final LA Listening Test

Covariate(s): 1. Mid-Year LB Listening Test
2. Language I.Q.

CONTRAST	FRENCH (55 Classes)		GERMAN (41 Classes)		
	F-Ratio	Probability	F-Ratio	Probability	
1. FSG vs FSM	1.202	.275	4.637	.034*	FSG > FSM

TABLE 80

ANALYSIS OF COVARIANCE

Criteria : Mid-Year LB Reading Test

Covariate(s): Language I.Q.

CONTRAST	FRENCH (55 Classes)			GERMAN (41 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. FSG vs FSM	5.128	.026*	FSG < FSM	2.229	.14

TABLE 81

ANALYSIS OF COVARIANCE

Criteria : Final LA Reading Test

Covariate(s): 1. Mid-Year LB Reading Test
2. Language I.Q.

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)	
	F-Ratio	Probability		R-Ratio	Probability
1. TLM vs FSG	.055	.815		.506	.479
2. TLM vs FSM	8.119	.005**	TLM >FSM	.246	.621
3. AA vs AR	.103	.749		.005	.942
4. FSG vs FSM	.238	.627		.017	.896
5. AA/AR vs FSG/FSM	1.193	.278		.080	.778
6. SEX	3.551	.063		3.291	.074

TABLE 82

ANALYSIS OF COVARIANCE

Criteria : Final LA Reading Test

Covariate(s): Language I.Q.

CONTRAST	FRENCH (32 Classes)			GERMAN (23 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. FSG vs FSM	5.144	.025*	FSG > FSM	2.274	.136
2. SEX	4.312	.040*	F > M	1.400	.240
3. Interaction SEX/FSG/FSM	.229	.633		.343	.560

TABLE 83

ANALYSIS OF COVARIANCE

Criteria : Final LA Reading Test
Covariate(s): Language I.Q.
Pre-Exper. Cooperative Reading Test

CONTRAST	FRENCH (32 Classes)			GERMAN (23 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. FSG vs FSM	6.696	.011**	FSG > FSM	2.404	.125
2. SEX	3.840	.053*	F > M	.834	.364
3. Interaction SEX/FSG/FSM	.121	.724		.347	.557

TABLE 84

ANALYSIS OF COVARIANCE

Criteria : Final LA Reading Test
Covariate(s): Language I.Q.
Pre-Exper. Cooperative Test Total

CONTRAST	FRENCH (32 Classes)			GERMAN (23 Classes)	
	F-Ratio	Probability		F-Ratio	Probability
1. FSG vs FSM	6.282	.014**	FSG > FSM	2.320	.132
2. SEX	3.407	.068	F > M	1.076	.303
3. Interaction SEX/FSG/FSM	.070	.792		.329	.568

TABLE 85

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Reading Test

Covariate(s): Pre-Exper. Coop. Reading Test

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. TLM vs FSG	8.151	.015**	TLM > FSG	2.812	.098	
2. TLM vs FSM	16.144	.001**	TLM > FSM	32.108	.001**	TLM > FSM
3. AA vs AR	.202	.654		.804	.373	
4. FSG vs FSM	2.421	.123		.230	.633	
5. AA/AR vs FSG/FSM	5.913	.017**	F > M	6.474	.013**	F > M

TABLE 86

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Vocabulary Test
Covariate(s): Pre-Exp. Cooperative Vocabulary Test

CONTRAST	FRENCH (32 Classes)			GERMAN (23 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. FSG vs FSM	8.397	.005**	FSG > FSM	.154	.696	
2. SEX	3.475	.065	F > M	6.180	.015**	F > M
3. Interaction SEX FSG/FSM	.013	.908		.455	.502	
4. Reanalysis FSG vs FSM (N55)	8.225	.005**	FSG > FSM	.363	.548 (N41)	

TABLE 87

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Vocabulary
Covariate(s): Pre-Exp. Cooperative Vocabulary

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)		
1. TLM vs FSG	7.582	.007**	TLM > FSG	3.865	.054*	TLM>FSG
2. TLM vs FSM	19.102	.001**	TLM > FSM	31.915	.001**	TLM>FSM
3. AA vs AR	1.552	.216		.184	.669	
4. FSG vs FSM	2.576	.112		.148	.701	
5. AA/AR vs FSG/FSM	.053	.819		.357	.552	
6. SEX	7.879	.006**	F > M	5.560	.021**	F>M

4

TABLE 88

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Grammar Test
Covariate(s): Pre-Exp. Cooperative Grammar Test

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. TLM vs FSG	10.438	.002**	TLM > FSG	.255	.615	
2. TLM vs FSM	22.677	.001**	TLM > FSM	13.550	.001**	TLM > FSM
3. AA vs AR	2.893	.092		.075	.786	
4. FSG vs FSM	.249	.619		.192	.663	
5. AA/AR vs FSG/FSM	.543	.463		.877	.352	
6. SEX	4.615	.034*	F > M	4.715	.034*	F > M

TABLE 89

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Grammar Test
Covariate(s): Pre-Exp. Cooperative Grammar Test

CONTRAST	FRENCH (55 Classes)			GERMAN (41 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. FSG vs FSM	.008	.929		.001	.972	
2. TR vs AA vs AR	5.484	.006**	TR > AR > AA	.007	.993	
3. Interaction FSG-FSM/ TR-AA-AR	.652	.523		.749	.479	
4. TLM vs FSG+FSM	26.016	.001**	TLM > FSG+ FSM	28.954	.001**	TLM>FSG+FSM
5. Reanalysis FSG vs FSM	2.723	.102		.159	.691	

TABLE 90

ANALYSIS OF COVARIANCE

Criteria : Final Cooperative Total
Covariate(s): Pre-Exper. Cooperative Total

CONTRAST	FRENCH (53 Classes)			GERMAN (38 Classes)		
	F-Ratio	Probability		F-Ratio	Probability	
1. TLM vs FSG	10.173	.002**	TLM > FSG	2.595	.112	
2. TLM vs FSM	23.903	.001**	TLM > FSM	34.323	.001**	TLM > FSM
3. AA vs AR	1.608	.208		.478	.492	
4. FSG vs FSM	2.482	.119		.286	.594	
5. AA/AR vs FSG/FSM	.873	.352		.391	.534	
6. SEX	7.509	.007**	F > M	7.656	.007**	F > M

TABLE 91

UNIVARIATE ANALYSIS OF VARIANCE

TRADITIONAL METHOD vs FUNCTIONAL SKILLS STRATEGIES WITH TAPE RECORDERS

Univariate F-Tests

FINAL TEST	FRENCH (14 Classes)		GERMAN (12 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. Mid-Year LB Speaking	1.386	.243	2.291	.137
2. LA Speaking	5.133	.027	.656	.423
3. LA Writing	9.790	.003** TLM > FS	1.599	.213

TABLE 92

UNIVARIATE ANALYSIS OF VARIANCE

FUNCTIONAL SKILLS GRAMMAR vs FUNCTIONAL SKILLS METHOD

Univariate F-Tests

FINAL TEST	FRENCH (26 Classes)		GERMAN (15 Classes)	
	F-Ratio	Probability	F-Ratio	Probability
1. Mid-Year LB Speaking	.526	.471	1.356	.252
2. LA Speaking	3.528	.065	.363	.551
3. LA Writing	.102	.751	.041	.841

TABLE 93

ANALYSIS OF COVARIANCE

SPEAKING SUB-TESTS

TLM vs FSG+FSM-TR

FRENCH (DF 1,69)

Criteria	Covariate	Mn. Sq.	F-ratio	Probability	
1. Final Mimic.	Mid-yr. Mimic.	18.206	2.365	.129	
2. Final Crit. Snds.	Mid-yr. Crit. Snds.	25.056	7.410	.008**	TLM > FSG+FSM-TR
3. Final Global	Mid-yr. Global	1.091	3.339	.072	
4. Final Pict. Q.	Mid-yr. Pict. Q.	10.069	3.432	.068	
5. Final Pict. Des.	Mid-yr. Pict. Des.	10.301	1.896	.173	
6. Final Pict. Seq.	Mid-yr. Pict. Seq.	11.281	.968	.328	
7. Final Total	Mid-yr. Total	213.017	3.936	.051*+	TLM > FSG+FSM-TR

N.B.+ Probability falls to .038 with a reordering of effects

GERMAN (DF 1,42)

Criteria	Covariate	Mn. Sq.	F-ratio	Probability
1. Final Mimic.	Mid-yr. Mimic.	.877	.181	.607
2. Final Crit. Snds.	Mid-yr. Crit. Snds.	1.035	.786	.380
3. Final Global	Mid-yr. Global	.100	.619	.436
4. Final Pict. Q.	Mid-yr. Pict. Q.	.554	.358	.553
5. Final Pict. Des.	Mid-yr. Pict. Des.	29.712	2.648	.111
6. Final Pict. Seq.	Mid-yr. Pict. Seq.	10.607	1.678	.202
7. Final Total	Mid-yr. Total	4.614	.176	.677

APPENDIX E

ANALYSES OF STUDENT ACHIEVEMENT BY APTITUDE AND INTELLIGENCE

TABLE 94

ANALYSIS OF VARIANCE BY APTITUDE

FRENCH - FINAL LA LISTENING TEST

Variable	N	Mean	S.D.
1. Low TLM	46	11.91	3.83
2. Low FSG	88	11.43	3.31
3. Low FSM	45	12.00	3.62
4. Mid TLM	147	14.22	3.54
5. Mid FSG	304	13.99	5.01
6. Mid FSM	388	14.17	6.29
7. High TLM	19	17.11	5.30
8. High FSG	99	18.56	6.35
9. High FSM	110	18.82	6.02

Source	df	Sm. Sq.	Mean Sq.	F
Between	8	5352.51	669.06	23.42
Within	1237	35349.28	28.58	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	1.	3.	5.	6.	4.	7.	8.	9.
2.	11.43	.48	.51	2.56*	2.74*	2.79*	5.68**	7.13**	7.39**
1.	11.91		.09	2.08	2.26	2.31	5.20**	6.65**	6.91**
3.	12.00			1.99*	2.17	2.22	5.11**	6.56**	6.82**
5.	13.99				.18	.23*	3.12**	4.57**	4.83**
6.	14.17					.05	2.94**	4.39**	4.65**
4.	14.22						2.89**	4.34**	4.60**
7.	17.11							1.45	1.71
8.	18.56								.26
9.	18.82								---

* p. $<$ .05, ** p. $<$ .01

TABLE 95

ANALYSIS OF VARIANCE BY APTITUDE

GERMAN - FINAL LA LISTENING TEST

Variable	N	Mean	S.D.
1. Low TLM	19	14.47	7.61
2. Low FSG	70	13.31	4.56
3. Low FSM	54	14.11	6.07
4. Mid TLM	90	17.07	6.05
5. Mid FSG	256	15.15	5.25
6. Mid FSM	260	15.24	4.89
7. High TLM	26	17.50	4.65
8. High FSG	65	16.28	5.06
9. High FSM	81	18.53	4.85

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	1607.97	200.99	7.35
Within	912	24972.53	27.38	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	1.	5.	6.	8.	4.	7.	9.
2.	13.31	.80	1.16	1.84	1.93	2.97*	3.76**	4.19**	4.92**
3.	14.11		.36	1.04	1.13	2.17	2.96*	3.39*	4.12**
1.	14.47			.68	.77	1.81	2.60	3.03*	3.76**
5.	15.15				.09	1.13	1.92	2.35	3.08*
6.	15.24					1.04	1.83	2.26	2.99*
8.	16.28						.79	1.22	1.95
4.	17.07							.43	1.16
7.	17.50								.73
9.	18,23								---

* p.< .05, ** p.< .01

TABLE 96

ANALYSIS OF VARIANCE BY APTITUDE

FRENCH - FINAL LA READING TEST

Variable	N	Mean	S.D.
1. Low TLM	46	14.76	3.48
2. Low FSG	88	12.68	2.50
3. Low FSM	45	13.58	3.37
4. Mid TLM	147	17.36	5.50
5. Mid FSG	304	15.11	4.15
6. Mid FSM	388	14.96	4.57
7. High TLM	19	23.11	7.59
8. High FSG	99	18.55	4.89
9. High FSM	110	18.63	5.15

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	4547.90	568.49	26.86
Within	1237	26185.27	21.17	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	1.	6.	5.	4.	8.	9.	7.
2.	12.68	.90	2.08*	2.28*	2.43*	4.68**	5.87**	5.95**	10.43**
3.	13.58		1.18	1.38	1.53	3.78**	4.97**	5.05**	9.53**
1.	14.76			.20	.35	2.60**	3.79**	3.87**	8.35**
6.	14.96				.15	2.40**	3.59**	3.67**	8.15**
5.	15.11					2.25**	3.44**	3.52**	8.00**
4.	17.36						1.19	1.27	5.75**
8.	18.55							.08	4.56**
9.	18.63								4.48**
7.	23.11								---

* $p. < .05$, ** $p. < .01$

TABLE 97

ANALYSIS OF VARIANCE BY APTITUDE

GERMAN - FINAL LA READING TEST

Variable	N	Mean	S.D.
1. Low TLM	19	15.89	7.41
2. Low FSG	70	13.43	3.94
3. Low FSM	54	14.93	9.16
4. Mid TLM	90	17.10	5.65
5. Mid FSG	256	14.50	3.86
6. Mid FSM	260	14.30	4.86
7. High TLM	26	18.31	5.63
8. High FSG	65	16.32	3.61
9. High FSM	81	16.88	4.11

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	1449.19	181.15	7.43
Within	912	22237.84	24.38	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	6.	5.	3.	1.	8.	9.	4.	7.
2.	13.43	.87	1.07	1.50	2.46	2.89*	3.45**	3.67**	4.88**
6.	14.30		.20	.63	1.59	2.02	2.58	2.80*	4.01**
5.	14.50			.43	1.49	1.82	2.38	2.60	3.81**
3.	14.93				.96	1.39	1.95	2.17	3.38**
1.	15.89					.43	.99	1.21	2.42
8.	16.32						.56	.78	1.99
9.	16.88							.22	1.43
4.	17.10								1.21
7.	18.31								---

* p.<.05, ** p.<.01

TABLE 98

ANALYSIS OF VARIANCE BY APTITUDE

FRENCH - FINAL COOPERATIVE TEST

Variable	N	Mean	S.D.
1. Low TLM	46	43.96	11.56
2. Low FSG	88	29.57	8.09
3. Low FSM	45	29.96	7.41
4. Mid TLM	147	54.33	13.86
5. Mid FSG	304	34.28	10.29
6. Mid FSM	388	35.97	13.54
7. High TLM	19	66.53	20.03
8. High FSG	99	51.51	12.95
9. High FSM	110	40.61	19.68

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	77393.00	9674.13	56.70
Within	1237	211068.30	170.63	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	5.	6.	9.	1.	8.	4.	7.
2.	29.57	.39	4.71	6.40*	11.04**	14.39**	21.94**	24.76**	36.96**
3.	29.96		4.32	6.01*	10.70**	14.00**	21.55**	24.37**	36.57**
5.	34.28			1.69	6.33*	9.68**	17.23**	30.75**	32.25**
6.	35.97				4.64*	7.99**	15.54**	18.36**	30.56**
9.	40.61					3.35	10.90**	13.72**	25.92**
1.	43.96						7.55**	10.37**	23.57**
8.	51.51							2.82	15.02**
4.	54.33								12.02**
7.	66.53								---

* p. $<$ .05, ** p. $<$ .01

TABLE 99

ANALYSIS OF VARIANCE BY APTITUDE

GERMAN - FINAL COOPERATIVE TEST

Variable	N	Mean	S.D.
1. Low TLM	19	56.32	23.64
2. Low FSG	70	34.71	10.07
3. Low FSM	54	36.54	12.71
4. Mid TLM	90	64.48	14.20
5. Mid FSG	256	43.24	12.04
6. Mid FSM	260	42.09	11.59
7. High TLM	26	70.85	10.13
8. High FSG	65	49.51	12.66
9. High FSM	81	51.40	12.01

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	71603.40	8950.43	58.46
Within	912	139642.10	153.12	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	6.	5.	8.	9.	1.	4.	7.
2.	34.71	1.83	7.38**	8.53**	14.80**	16.69**	21.61**	29.77**	36.14**
3.	36.54		5.55**	6.70**	12.97**	14.86**	19.78**	27.94**	34.31**
6.	42.09			1.15	7.42**	9.31**	14.29**	22.39**	28.76**
5.	43.24				6.27**	8.16**	13.08**	21.24**	27.61**
8.	49.51					1.89	6.81**	14.97**	21.34**
9.	51.40						4.92*	13.08**	14.95**
1.	56.32							8.16**	14.53**
4.	64.48								6.37**
7.	70.85								---

* p. $<$.05, ** p. $<$.01

TABLE 100

ANALYSIS OF VARIANCE BY INTELLIGENCE

FRENCH - FINAL LA LISTENING TEST

Variable	N	Mean	S.D.
1. Low TLM	25	11.76	4.60
2. Low FSG	91	11.37	3.66
3. Low FSM	50	11.28	4.01
4. Mid TLM	167	13.95	3.72
5. Mid FSG	326	14.67	5.52
6. Mid FSM	414	14.85	6.50
7. High TLM	20	16.90	3.91
8. High FSG	74	17.28	5.83
9. High FSM	80	17.70	5.75

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	3205.61	400.70	13.22
Within	1238	37539.72	30.32	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	2.	1.	4.	5.	6.	7.	8.	9.
3.	11.28	.09	.48	2.67*	3.39**	3.57**	5.62**	6.00**	6.42**
2.	11.37		.39	2.58*	3.30**	3.48**	5.53**	5.91**	6.33**
1.	11.76			2.19*	2.91*	3.09*	5.14**	5.52**	5.94*
4.	13.95				.72	.90	2.95*	3.33*	3.75**
5.	14.07					.08	2.23	2.61	3.03*
6.	14.85						2.05*	2.43*	2.85*
7.	16.90							.38	.80
8.	17.28								.42
9.	17.70								---

* p.$<$ .05, ** p.$<$ .01

TABLE 101

ANALYSIS OF VARIANCE BY INTELLIGENCE

GERMAN - FINAL LA LISTENING TEST

Variable	N	Mean	S.D.
1. Low TLM	9	16.44	9.34
2. Low FSG	42	14.36	7.06
3. Low FSM	39	14.15	6.17
4. Mid TLM	99	16.11	6.08
5. Mid FSG	296	14.85	4.75
6. Mid FSM	299	15.55	4.87
7. High TLM	27	19.37	4.00
8. High FSG	51	16.45	5.66
9. High FSM	59	17.92	5.80

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	1083.97	135.50	4.851
Within	912	25496.53	27.96	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	2.	5.	6.	4.	1.	8.	9.	7.
3.	14.15	.21	.70	1.40	1.96	2.29	2.30	3.77	5.22**
2.	14.36		.49	1.19	1.75	2.08	2.09	3.56	5.01**
5.	14.85			.70	1.26	1.59	1.60	3.07	4.42**
6.	15.55				.56	.89	.90	2.37	3.82*
4.	16.11					.33	.34	1.81	3.26
1.	16.44						.01	1.48	2.93
8.	16.45							1.47	2.92*
9.	17.92								1.45
7.	19.37								---

* p. <.05, ** p. <.01

TABLE 102

ANALYSIS OF VARIANCE BY INTELLIGENCE

FRENCH - FINAL LA READING TEST

Variable	N	Mean	S.D.
1. Low TLM	25	14.48	4.81
2. Low FSG	91	13.19	2.94
3. Low FSM	50	13.74	3.86
4. Mid TLM	167	17.19	5.30
5. Mid FSG	326	15.37	4.49
6. Mid FSM	414	15.32	4.57
7. High TLM	20	21.90	7.61
8. High FSG	74	18.04	5.50
9. High FSM	80	18.21	5.89

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	2937.57	367.20	16.34
Within	1246	27834.11	22.48	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	1.	6.	5.	4.	9.	8.	7.
2.	13.19	.55	1.29	2.13	2.18	4.00**	5.02**	5.21**	8.71**
3.	13.74		.74	1.58	1.63	3.55**	4.47**	4.66**	8.16**
1.	14.48			.84	.89	2.71*	3.73**	3.92**	7.42**
6.	15.32				.05	1.87	2.89**	3.08**	6.58**
5.	15.37					1.82*	2.89**	3.03**	6.53**
4.	17.19						1.02	1.21	4.71**
9.	18.21							.19	3.69**
8.	18.40								3.50**
7.	21.90								---

$* \ p. < .05$, $** \ p. < .01$

TABLE 103

ANALYSIS OF VARIANCE BY INTELLIGENCE

GERMAN - FINAL LA READING TEST

Variable	N	Mean	S.D.
1. Low TLM	9	18.78	9.43
2. Low FSG	42	13.48	4.26
3. Low FSM	39	14.97	9.31
4. Mid TLM	99	16.82	5.76
5. Mid FSG	296	14.54	3.83
6. Mid FSM	299	14.75	5.16
7. High TLM	27	17.89	5.10
8. High FSG	51	15.88	3.92
9. High FSM	59	15.75	4.24

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	920.44	115.06	4.61
Within	912	22766.59	24.96	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	5.	6.	3.	9.	8.	4.	7.	1.
2.	13.48	1.06	1.27	1.49	2.27	2.40	3.34	4.41**	5.30*
5.	14.54		.21	.43	1.21	1.34	2.28	3.35	4.24*
6.	14.75			.22	1.00	1.13	2.07	3.14	4.03*
3.	14.97				.82	.95	1.89	2.96	3.85*
9.	15.75					.13	1.07	2.14	3.03
8.	15.88						.94	2.01	2.90
4.	16.82							1.07	1.96
7.	17.89								.89
1.	18.78								---

* p. < .05, ** p. < .01

TABLE 104

ANALYSIS OF VARIANCE BY INTELLIGENCE

FRENCH - FINAL COOPERATIVE TEST

Variable	N	Mean	S.D.
1. Low TLM	25	43.84	12.35
2. Low FSG	91	31.22	8.68
3. Low FSM	50	31.12	11.68
4. Mid TLM	167	53.36	14.14
5. Mid FSG	326	40.56	11.95
6. Mid FSM	414	35.56	13.74
7. High TLM	20	63.25	20.14
8. High FSG	74	48.38	12.58
9. High FSM	80	44.01	19.02

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	66119.10	8264.89	45.99
Within	1238	222529.20	179.75	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	2.	6.	5.	1.	9.	8.	4.	7.
3.	31.12	.10	4.44	9.44**	12.72**	12.89**	17.26**	22.24**	32.13**
2.	31.22		4.34	9.34**	12.62**	12.79**	17.16**	22.14**	32.03**
6.	35.56			5.00*	8.28**	8.45**	12.82**	17.80**	27.71**
5.	40.56				3.28	3.45	7.82*	12.80**	22.71**
1.	43.84					.17	4.54	9.52**	19.41**
9.	44.01						4.37	9.35**	19.24**
8.	48.38							4.98*	14.87**
4.	53.36								9.89**
7.	63.25								---

* $p. < .05$, ** $p. < .05$

TABLE 105

ANALYSIS OF VARIANCE BY INTELLIGENCE

GERMAN - FINAL COOPERATIVE TEST

Variable	N	Mean	S.D.
1. Low TLM	9	61.89	21.76
2. Low FSG	42	35.71	13.14
3. Low FSM	39	37.56	13.83
4. Mid TLM	99	63.58	15.38
5. Mid FSG	296	42.85	11.96
6. Mid FSM	299	43.05	12.17
7. High TLM	27	69.04	14.17
8. High FSG	51	48.71	12.58
9. High FSM	59	47.36	13.14

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	60402.70	7550.34	45.65
Within	912	150842.80	165.40	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	5.	6.	9.	8.	1.	4.	7.
2.	35.71	1.85	7.14*	9.34*	11.65**	13.00**	26.18**	27.87**	33.33**
3.	37.56		5.29	5.49	9.80**	11.15**	24.33**	26.02**	31.48**
5.	42.85			.20	4.51	5.86	19.04**	20.73**	26.19**
6.	43.05				4.31	5.66	18.84**	20.53**	25.99**
9.	47.36					1.35	14.53**	16.22**	21.68**
8.	48.71						13.18**	14.87**	20.33**
1.	61.89							1.69	7.15*
4.	63.58								5.46
7.	69.04								---

* p.$<$.05, ** p.$<$.01

APPENDIX F

STUDENT ATTITUDE AND EXPECTATION MEASURES

Date________________________ Name______________________________________
last first

Teacher______________________ School____________________________________

STUDENT OPINION SCALE

This scale is an attempt to get your general impression about the study of foreign language. There is no right or wrong feeling or impression. Your responses on this scale will not be used by the teacher to determine your grades.

You will see that on each line there are two words, such as:

	1	2	3	4	5	6	7	
intelligent	( )	( )	( )	( )	( )	( )	( )	stupid

Between these two words are seven spaces, and somewhere between the two words (or extremes) is your impression about something. If you were asked your impression about television news programs, you might check as follows:

	1	2	3	4	5	6	7	
intelligent	( )	(X)	( )	( )	( )	( )	( )	stupid

but if you were asked your impression about high school, you might check somewhere else. In some cases you may not have a feeling one way or the other, in which case you would place an "X" in the middle space (number 4).

For each pair of words on this scale, place an "X" in the position between 1 and 7 that best fits your impression about...

THE STUDY OF FRENCH (OR GERMAN) THIS COMING YEAR

	1	2	3	4	5	6	7	
exciting	( )	( )	( )	( )	( )	( )	( )	dull
alive	( )	( )	( )	( )	( )	( )	( )	lifeless
interesting	( )	( )	( )	( )	( )	( )	( )	boring
dread	( )	( )	( )	( )	( )	( )	( )	enjoy
dislike	( )	( )	( )	( )	( )	( )	( )	like
most	( )	( )	( )	( )	( )	( )	( )	least
unnecessary	( )	( )	( )	( )	( )	( )	( )	necessary
easy	( )	( )	( )	( )	( )	( )	( )	hard
meaningful	( )	( )	( )	( )	( )	( )	( )	meaningless
unimportant	( )	( )	( )	( )	( )	( )	( )	important
successful	( )	( )	( )	( )	( )	( )	( )	unsuccessful
rewarding	( )	( )	( )	( )	( )	( )	( )	discouraging
valuable	( )	( )	( )	( )	( )	( )	( )	worthless
unfair	( )	( )	( )	( )	( )	( )	( )	fair
impractical	( )	( )	( )	( )	( )	( )	( )	practical
exact	( )	( )	( )	( )	( )	( )	( )	inexact
uncertain	( )	( )	( )	( )	( )	( )	( )	certain
organized	( )	( )	( )	( )	( )	( )	( )	disorganized

Mark "X" in front of the phrase which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

______I am the best
______I am above average
______I am average
______I am below average
______I am the poorest

2. How do you rate yourself in school ability compared with those in your class at school.

______I am among the best
______I am above average
______I am average
______I am below average
______I am among the poorest

3. Where do you think you would rank in your graduating class in high school?

______Among the best
______Above average
______Average
______Below average
______Among the poorest

4. Do you think you have the ability to complete college?

______Yes, definitely
______Probably yes
______Not sure
______Probably not
______No

5. Where do you think you would rank in your class in college?

______Among the best
______Above average
______Average
______Below average
______Among the poorest

6. In order to become a doctor, lawyer, etc., additional education beyond four years of college is necessary; do you think you have the ability to complete such advanced work?

______Yes, definitely
______Probably yes
______Not sure
______Probably not
______No

7. In your own opinion how good do you think your schoolwork is?

______Excellent
______Good
______Average
______Below average
______Failing

8. What kind of grades do you think you are capable of getting?

______Mostly A's
______Mostly B's
______Mostly C's
______Mostly D's
______Mostly F's

9. Do you think you have the ability to learn a foreign language?

______Yes, definitely
______Probably yes
______Not sure
______Probably not
______No

10. Do you think you have the ability to complete three or four years of foreign language study in high school?

______Yes, definitely
______Probably yes
______Not sure
______Probably not
______No

11. How would you rate yourself in foreign language ability compared with your friends?

______I am the best
______I am above average
______I am average
______I am below average
______I am the poorest

12. How would you rate yourself in foreign language ability compared with those in your class at school?

______I am among the best
______I am above average
______I am average
______I am below average
______I am among the poorest

13. In order to become a teacher of a foreign language much work in college is necessary. How likely do you think it is that you could complete such advanced work?

______Very likely
______Somewhat likely
______Not sure either way
______Unlikely
______Most likely

14. What grades do you think you are capable of getting in foreign language study?

______Mostly A's
______Mostly B's
______Mostly C's
______Mostly D's
______Mostly F's

Place an "X" in the proper block to show how strongly you agree or disagree with the following statements:

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. I like to tell jokes and funny stories to a group of people.					
2. I like to participate in school plays and similar activities.					
3. I like to tell groups of people about my travel or unusual experiences.					
4. I like people to notice my appearance when I am in a large group.					
5. I would enjoy performing on television or in a school assembly					
6. I like to make witty remarks to people.					
7. I would like to study dramatics.					
8. I like to tell people about something that I am able to do well.					
9. I like to be the center of attraction at parties and similar gatherings.					
10. I am not easily embarrassed.					

In the list below place an "X" in column A next to the subjects you are not taking. Then in column B indicate how you think you will like the subjects by putting a "1" for your first choice, a "2" for your second, and so on.

	A	B
Algebra		
Arithmetic		
Geometry		
Mathematics		
Biology		
Chemistry		
Earth Science		
Science		
English		
French		
German		
Latin		
Language Arts		
Reading		
American History		
Civics		
Geography		
Penna. History		
Social Studies		
World Cultures		
World History		

Using the model shown for English, indicate below your present plans for language study until you graduate from high school.

Number of years I will study:

	0	1	2	3	4	5
English						
French						
German						
Italian						
Latin						
Russian						
Spanish						

Supposing that all of the languages listed were offered and you were free to choose, indicate in the same way how you would plan your language study.

Number of years I would like to study:

	0	1	2	3	4	5
English						
French						
German						
Italian						
Latin						
Russian						
Spanish						

Below is a list of twelve accomplishments which are associated with foreign language learning. Indicate their importance to you by placing a "1" next to the most important, a "2" for the next in importance, and so on for all the statements.

I hope that my study of foreign languages will enable me to:

______be accepted by a college.

______fulfill my requirements for graduation from college.

______understand the grammar and structure of the language.

______translate from one language to the other.

______listen with understanding to the radio, records, and conversation in movies and plays in the foreign language.

______understand foreign words and phrases in English literature.

______enrich my cultural background.

______correspond with foreign "pen pals" in their native language.

______enjoy cartoons and comic books in the language.

______acquire a better understanding of English.

______socialize with foreign exchange students.

______serve as an interpreter for foreign visitors.

TABLE 106

ANALYSIS OF VARIANCE

STUDENT OPINION INDEX - TEN PERCENT RANDOM SAMPLE

Variable	N	Mean	S.D.
1. Pre-experimental, French	198	5.43	.75
2. Pre-experimental, German	138	5.52	.66
3. Mid-experimental, French	198	5.08	.96
4. Mid-experimental, German	138	5.18	1.06
5. Post-experimental, French	198	4.93	1.11
6. Post-experimental, German	138	5.13	1.10

Source	df	Sm. Sqs.	Mean Sq.	F
Between	5	42.51	8.50	9.35
Within	1002	911.76	.91	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group	Mean	3.	6.	4.	1.	2.
5.	4.93	.15	.20	.25	.50**	.59**
3.	5.08		.05	.10	.35**	.46**
6.	5.13			.05	.30*	.39**
4.	5.18				.25*	.34**
1.	5.43					.09
2.	5.52					---

* p.< .05, ** p.< .01

TABLE 107

STUDENT ATTITUDE vs ACHIEVEMENT

FRENCH, N=143

Variable	Mean	S.D.
1. Language I.Q.	115.4	9.90
2. Non-Language I.Q.	114.0	11.92
3. I.Q. Total	116.4	10.03
4. Mod. Lang. Aptitude Test, Short Form	51.2	17.72
5. Pre-Exper. Listening Test	10.1	4.58
6. Final Listening Discrimination Test	45.9	7.45
7. Student Opinion Index, September	5.42	.75
8. Student Opinion Index, January	5.21	.92
9. Student Opinion Index, May	5.03	1.11
10. Academic Self-Rating	2.91	.41
11. Language Self-Rating	2.20	.39
12. Verbal Leadership	3.27	.46
13. Relative Subject Rating	2.76	1.19
14. Planned Language Study	5.0	5.02
15. Desired Language Study	5.7	4.96
16. Final Listening Test	15.7	6.65
17. Final Reading Test	16.7	5.87
18. Final Speaking Test	28.7	11.62
19. Final Writing Test	22.9	18.55
20. Final Cooperative Test	43.3	18.25

TABLE 108

CORRELATION COEFFICIENTS

FRENCH

Variable	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	.028	-.028	.012	.325**	.219**	-.046	.103	.025	.050
2.	-.028	-.003	.012	.092	.064	-.129	.021	-.055	-.097
3.	.048	-.024	.015	.248*	.171	-.097	.777**	.025	-.032
4.	.212*	.212*	.258**	.417**	.480	-.012	-.081	-.116	.119
5.	-.038	-.117	.042	.115	.207*	-.026	-.026	.005	.028
6.	.141	.210*	.192	.193	.230*	.002	-.110	-.034	.069
7.	---	.405**	.316**	.293**	.436**	.075	-.349**	.195*	.355**
8.		---	.651**	.218*	.322**	.108	-.189	.018	.169
9.			---	.328**	.360**	.119	-.193	.012	.209*
10.				---	.681**	.189	.015	.138	.266**
11.					---	.151	-.281**	.009	.289**
12.						---	.083	.073	.103
13.							---	.084	-.126
14.								---	.501**
15.									---
16.	.203*	.309**	.319**	.277**	.361**	-.035	-.147	-.048	.130
17.	.163	.217*	.271**	.226*	.325**	-.051	-.206*	-.111	.011
18.	.119	.222*	.279**	.286**	.286**	-.134	.051	.000	.037
19.	.167	.155	.239*	.241*	.323**	-.045	-.224*	.024	.207*
20.	.125	.212*	.253*	.250*	.401**	.084	-.198*	.025	.111

*r = .195, $p < .05$, **r = .254, $p < .01$

TABLE 109

STUDENT ATTITUDE vs ACHIEVEMENT

GERMAN, N=87

Variable	Mean	S.D.
1. Language I.Q.	115.0	10.55
2. Non-Language I.Q.	112.5	11.24
3. I.Q. Total	115.6	9.97
4. Mod. Lang. Aptitude Test, Short Form	46.4	17.43
5. Pre-Exper. Listening Test	10.6	3.52
6. Final Listening Discrimination Test	40.4	8.54
7. Student Opinion Index, September	5.49	.66
8. Student Opinion Index, January	5.17	1.07
9. Student Opinion Index, May	5.04	1.12
10. Academic Self-Rating	2.95	.41
11. Language Self-Rating	2.24	.35
12. Verbal Leadership	3.18	.47
13. Relative Subject Rating	2.71	1.07
14. Planned Language Study	5.9	4.95
15. Desired Language Study	6.3	4.85
16. Final Listening Test	15.8	5.46
17. Final Reading Test	15.5	6.50
18. Final Speaking Test	26.2	8.95
19. Final Writing Test	28.9	14.11
20. Final Cooperative Test	46.6	15.21

TABLE 110

CORRELATION COEFFICIENTS

GERMAN

Variable	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	.150	.011	.187	.489**	.353**	.204	-.038	.185	-.045
2.	.201	.135	.176	.397**	.311**	.138	-.106	-.047	.017
3.	.190	.063	.198	.512**	.366**	.217*	-.078	.103	-.103
4.	.244*	.102	.149	.433**	.346**	.291**	-.136	-.065	-.190
5.	.135	-.056	.037	.109	.145	.124	.004	.065	.023
6.	.069	-.086	.157	.203	.235*	.121	.104	.054	.090
7.	---	.575**	.501**	.315**	.418**	.332**	-.391**	.222	.037
8.		---	.696**	.076	.166	.143	-.326**	.185	.127
9.			---	.080	.180	.172	-.376**	.120	.127
10.				---	.672**	.360**	.049	.184	.034
11.					---	.348**	-.124	.219*	.068
12.						---	-.051	.050	.009
13.							---	-.294**	-.117
14.								---	.569**
15.									---
16.	.208	.191	.234*	.270*	.242*	.002	-.153	.074	-.043
17.	.032	.209	.202	-.154	.072	-.083	-.122	-.099	.003
18.	.099	.226*	.252*	.325**	.305**	.033	-.162	.120	.040
19.	.273*	.220*	.277*	.356**	.318**	.056	-.241*	.103	-.007
20.	.215	.112	.208	.284**	.316**	.093	-.225*	.166	-.025

*r = .217, $p. < .05$, **r = .283, $p. < .01$

APPRENDIX G

TEACHER FACTORS RELEVANT TO STUDENT ACHIEVEMENT

TABLE 111

INTERCORRELATIONS ON TEACHER PROFICIENCY TESTS

FRENCH N-52

	Speak	Read	Write	Ling.	Cult.	Prof.Prep.
1. Listen	.630**	.786**	.705**	.562**	.523**	.514**
2. Speak		.643**	.638**	.617**	.620**	.609**
3. Read			.760**	.618**	.581**	.495**
4. Write				.692**	.533**	.446**
5. Ling.					.648**	.622**
6. Cult.						.586**

* r = .273 $p. < .05$, ** r = .354 $p. < .01$

GERMAN N=37

	Speak	Read	Write	Ling.	Cult.	Prof.Prep.
1. Listen	.754**	.690**	.590**	.204	.311	.139
2. Speak		.756**	.436**	.053	.167	.126
3. Read			.265	.119	.027	.338*
4. Write				.799**	.766**	.660**
5. Ling.					.768**	.805**
6. Cult.						.723**

* r = .325 $p. < .05$, ** r = .418 $p. < .01$

TABLE 112

CORRELATIONS BETWEEN CLASS MEANS

French

	2.	3.	4.	5.	6.	7.	8.
1. LB Lis.(Mid-yr.)	.636**	.235	.660**	.643**	.333*	.604**	.531**
2. LB Read(Mid-yr.)		.264	.372**	.508**	.552**	.365**	.515**
3. List. Discrim. Total			.450**	.340*	.166	.413**	.187
4. LA Listen				.753**	.199	.393**	.446**
5. LA Read					.491**	.561**	.661**
6. Coop. Total						.255	.659**
7. Speak: Total							.525**
8. Write: Total							---

at 50 d.f., $r = .273$ p. $< .05$, $r = .354$ p. $< .01$

German

	2.	3.	4.	5.	6.	7.	8.
1. LB Lis.(Mid-yr.)	.429**	.340*	.732**	.569**	.530**	.382**	.435**
2. LB Read(Mid-yr.)		.128	.359*	.342*	.550**	.110*	.140
3. List. Discrim. Total			.442**	.450**	.351*	.445**	.476**
4. LA Listen				.642**	.657**	.593**	.604**
5. LA Read					.815**	.469**	.655**
6. Coop: Total						.452**	.651**
7. Speak: Total							.727**
8. Write: Total							---

at 35 d.f., $r = .325$ p. $< .05$, $r = .418$ p. $< .01$